

HP NonStop Shadowbase Command Reference Manual

Abstract

The HP NonStop Shadowbase™ Command Reference explains the command syntax required to configure, operate, and manage the HP NonStop Shadowbase Process environment.

Product Version

HP Shadowbase Version 6.101\T1122H06^AAA

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This manual supports all J-series RVUs and all H-series RVUs (H06.21 and later and J06.10 and later), until otherwise indicated in a replacement publication.

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What's New In This Manual

- 6.101\T1122H06^AAA
 - Updated [SHOW SOLVMGR Command](#) syntax example
 - Globally added File Chaser reference to SOLVMGR verbiage
 - Amended PURGE DDL verbiage under [SET DBS Command](#) section
- 6.100\T1122H06 Original HP Release

Notation Conventions

Hypertext Links

Blue underline is used to indicate a hypertext link within text. By clicking a passage of text with a blue underline, you are taken to the location described. For example:

To preserve the modification timestamp, see....on page ____.

General Syntax Notation

The following list summarizes the conventions for syntax notation and presentation in the HP Shadowbase manual collection.

UPPERCASE LETTERS. Uppercase letters indicate keywords and reserved words; enter these items exactly as shown. Items not enclosed in brackets are required. For example:

```
PARAM SBCMDFILE
```

lowercase letters: Represent variable entries to be supplied by user. For example:

```
<file name>
```

Computer type. Computer type letters within text indicate C and Open System Services (OSS) keywords and reserved words. Type these items exactly as show. Items not enclosed in brackets are required. For example

```
RUN LOADHELP
```

Italic computer type. Italic computer type letters within text indicate C and Open System Services (OSS) variable items that you supply. Items not enclosed in brackets are not required. For example:

```
pathname
```

Brackets []: Enclose optional syntax. A vertically aligned group of items enclosed in brackets represents a list of selections from which one, or none, can be chosen. For example:

```
CKPTFNAME      [\system.] [$volume.] [subvolume.]  
filename
```

Braces { }: Enclose required syntax. A vertically aligned group of items enclosed in braces represents a list of selections from which exactly one must be chosen. For example:

```
CHECKCONFIG    { ON }  
                { OFF }
```

Ellipses ...: The enclosed syntax can be repeated a number of times. For example:

```
KEYVALUESTART < <string> | <byte> > [, <string> |  
<byte> ] ...
```

Punctuation: All punctuation and symbols other than those described above must be entered precisely as show. For example:

```
error := NEXTFILENAME ( file-name ) ;  
LISTOPENS SU $process-name. #su-name
```

Quotation marks around a symbol such as a bracket or brace indicate the symbol is a required character that you must type as shown. For example:

```
"{" repetition-constant-list "}"
```

Item Spacing. Spaces shown between items are required unless one of the items is a punctuation symbol such as a parenthesis or a comma. For example:

```
CALL STEPMOM ( process-id ) ;
```

If there is no space between two items, spaces are not permitted. In this example, no spaces are permitted between the period and any other items:

```
$process-name.#su-name
```

Line Spacing. If the syntax of a command is too long to fit on a single line, each continuation line is indented three spaces and is separated from the preceding line by a blank line. This spacing distinguishes items in a continuation line from items in a vertical list of selections. For example:

```
ALTER [ / OUT file-spec / ] LINE  
      [ , attribute-spec ] ...
```

Introduction

Overview

This manual provides the detail definitions for all commands used to configure, operate, and manage HP Shadowbase. Command definitions are categorized as described in the next section.

AUDCOM Command Punctuation

An AUDCOM command line spans input records if the last non-blank character is an ampersand (&). Multiple commands, separated by semicolons, can appear on the same line. For example,

```
command-1; command-2; command-3; command-4; &  
command-5; command-6...
```

Comments can be used to document AUDCOM commands. Comments can be embedded within a command or can appear on separate lines. Comments must be enclosed in brackets ([]) if they are embedded within an AUDCOM command. If the comments appear at the end of an AUDCOM command or on a line by themselves, the comment only needs the left bracket to be recognized. No other comment character is permitted. For example the following lines all perform the “STATUS AUD” command.

```
STATUS [this is a comment] AUD  
STATUS AUD [this is a comment at the end of a command  
STATUS AUD
```

AUDCOM Command Categories

AUDCOM commands are grouped into five logical categories. These categories are:

Basic commands

Commands used to set context within an AUDCOM session and remain in effect for the duration of the AUDCOM session.

Monitor control commands

Commands associated with the AUDMON configuration.

Collector process commands

Commands associated with the definition and control of Collectors.

Consumer process commands

Commands associated with the definition and control of Consumers.

Database specification commands

Commands associated with the definition and control of database specifications related to source and target files/tables being replicated. This includes those tables/files that are being included or excluded.

QMGR process commands

Commands associated with the definition and control of QMGR processes.

HP NonStop Shadowbase Command Definitions

Basic Command Descriptions

Basic commands are associated with setting context within an AUDCOM session. Once set, they remain in effect for that AUDCOM session only. The basic commands are described below:

These commands are session-oriented. Their values are reset to their defaults each time AUDCOM is exited.

All VOL commands in the above list, default to the current volume.subvolume

! Command

```
! [ [-] <num> | <string> ]
```

The ! command provides the ability to edit or to repeat a command line from the history buffer. This command is identical to the FC command, please refer to the 'FC' command description for usage information.

ADTVOL Command

The ADTVOL command sets the default volume and subvolume for expansion of the audit trail file name if the file name given with an ADTSTARTNAME Collector parameter is not fully qualified. See SET COLL command description for more information on the ADTSTARTNAME Collector parameter. The syntax is:

```
ADTVOL  [\system.]  [$volume.]  subvolume
```

CMDVOL Command

HP NonStop Shadowbase Command Definitions

Basic Command Descriptions

The CMDVOL command sets the default volume and subvolume for expansion of any file names with the exception of the defaults set by the ADTVOL, TARGETVOL, HISTVOL, SOURCEVOL, and TIDVOL commands. The syntax is:

```
CMDVOL  [\system.]  [$volume.]  subvolume
```

DICTVOL Command

The DICTVOL command sets the default volume and subvolume for expansion of the SOURCEDICT and TARGETDICT DBS parameters. The syntax is:

```
DICTVOL  [\system.]  [$volume.]  subvolume
```

ERRORS Command

The ERRORS command directs AUDCOM to stop parsing the configuration after the specified number of errors occurs. The state of the configured objects will remain as configured to the point of the error. This allows you to evaluate the configuration as it stands to determine the problem using AUDCOM interactively or through the output file. The syntax is:

```
ERRORS num
```

num

Is the number of errors to allow before parsing of the configuration stops. If this command is not entered, the entire configuration will be processed. Unless an exclamation point (!) appears after the RUN command, any error detected will prevent the system from entering a run state. See RUN command description below for more information.

For example, if you want your HP Shadowbase configuration to stop after the first error, add the line "ERRORS 1" to the beginning of your configuration.

EXIT Command

The EXIT command terminates the current command file input stream and AUDCOM. The syntax is:

```
EXIT
```

Note: The CTRL Y key combination will also work to exit AUDCOM.

FC Command

The FC command provides the ability to edit or to repeat a command line from the history buffer. The syntax is:

```
FC [ [-] <num> | <string> ] { [R<replacement string>] }  
                             { [I<insertion string>] }  
                             { [D] }
```

When the FC command executes, it displays the previous command line, or the specified line from the history buffer, and prompts for editing input with a period (.). FC accepts three subcommands:

R <replacement_string>
 replace one or more characters
I <insertion_string>
 insert one or more characters
D
 delete one character

Enter the subcommands and their associated strings beneath the displayed command line and end them with a carriage return. Replacement, insertion, or deletion begins with the character positioned directly above the subcommand.

Subcommand R replaces characters in the command line with replacement_string on a one-for-one basis. Subcommand I inserts characters in the command line with insertion_string on a one-for-one basis. Subcommand D deletes the above character in the command line; the D subcommand can be repeated for each character that is to be deleted. If a string is entered without a command, R is assumed.

HP NonStop Shadowbase Command Definitions

Basic Command Descriptions

After editing the line, FC redisplay the command line and prompts for another subcommand. FC terminates when it receives only a carriage return. The corrected line then executes.

The FC command can be terminated without execution by pressing BREAK, pressing CTRL/Y, or entering a double slash (//) in columns 1 and 2, immediately followed by a carriage return.

Examples of FC subcommand positioning:

```
set cpu 2p
      d
```

Deletes the extra p

```
set cpu 2
      Icoll
set coll cpu 2
```

Inserts the word coll before cpu

```
set coll cpu 2
              R1
set coll cpu 1
```

Replaces the number 2 with 1

FC commands can be separated by the double slash. For example:

```
set coll  cpu 1
          d//  r2
set coll cpu 2
```

Deletes space between coll and cpu, and replaces 1 with 2.

HELP Command

The HELP command allows the user to view a description and the syntax for the various HP Shadowbase commands. The syntax is:

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HP NonStop Shadowbase Command Definitions

Basic Command Descriptions

```
HELP      [ /OUT <listfile>/ ]      { [ALL]          }
                                           { [HELP]          }
                                           { [*]            }
                                           { command        }
                                           {               }
```

command

Is one of the following HP Shadowbase commands: Issuing a HELP command for the various SET <object> commands will also yield a list of the parameters associated with the object.

Example output is shown below:

```
+help
-----
HELP [ /OUT <listfile>/ ] { [ALL]          }
                           { [HELP]          }
                           { [*]            }
                           { <command>      }
                           {               }

<command> ::=
ABORTTX      ADD          ADTVOL      ALTER          ASSUME          CAPTURE
CHECK        CLEARTX      CMDVOL      COMMITTX        DELETE          DICTVOL
DRAIN        DUMPTX       ERRORS      ESTATS          EXIT            FC
HELP         HISTORY      HISTVOL     INFO             INFOTX          LICENSE
LOG          NEXTDOC      O           OBEY             OBEYFORM        OBEYVOL
OPEN         PULSE        PULSESTATS  RELEASE          RESET           RESUME
RESUMEUPD    RUN          SET          SET AUD          SET COLL        SET CONS
SET DBS      SHOW        SHUTDOWN   SPAN             SPANOFF         SPANON
SOLVSTATS    SOURCEVOL    START      STATS            STATUS          STOP
SUSPEND      SUSPENDUPD   SWITCH     SWITCHNET        TARGETVOL       TIDVOL
UNDO         !

Displays syntax and description of the commands.
-----
```

+

HISTORY Command

The HISTORY command displays command lines from the history buffer for <num-commands>. The current default will display the last 10 commands in the history buffer. The maximum number of commands saved is 60. The command lines in the history buffer can be used with the ! and FC commands.

```
HISTORY [ <num-commands> ]
```

HISTVOL Command

The HISTVOL command sets the default volume and subvolume for the location of the AUDHST file/table used to record historical statistics about processing. The syntax is:

```
HISTVOL  [\system.]  [$volume.]  subvolume
```

LICENSE Command

HP Shadowbase is a licensed software product. You need to have a HP Shadowbase license to run it on any system where you install it. As of HP Shadowbase version v3.950, HP Shadowbase licenses are provided in ASCII text “password” files and are date-based (i.e., they *expire* on a certain date). The password file must be made known to HP Shadowbase via the LICENSE command for HP Shadowbase to run on your system.

Note: Depending on the particular platform and your usage of HP Shadowbase, HP Shadowbase licenses are based on one or more of the following: the system type (called the system *tier*), the number of cpu’s in the system, and your usage (as a source vs. target, production vs. QA vs. development vs. test, etc). Contact HP Shadowbase Sales/Product Management (at the contact information provided at the front of this manual) for more information.

Given a valid password file, the LICENSE command grants permission to use the HP Shadowbase product for the date duration contained in the license. If the password file is illegal, no ADD object commands are allowed. If the license expires, AUDCOM and AUDMON will stop (or refuse to start in the first place). At least seven (7) days before your license expires, an EMS warning message appears periodically in your EMS subsystem to alert you that the license will expire (contact HP Shadowbase Support immediately if you see these messages).

See the *HP NonStop Shadowbase Operations Manual* for information about renewing passwords.

HP NonStop Shadowbase Command Definitions

Basic Command Descriptions

LICENSE must be the first command issued after opening AUDMON (via AUDCOM).

You can change the HP Shadowbase password file and dynamically issue a new LICENSE command to pick up the new license information while HP Shadowbase is running (e.g., to get a new license expiration date). However, be careful to place the new password file in the appropriate location where any of your OBEY files used for HP Shadowbase startup can get to it. To do this, simply issue the AUDCOM LICENSE command and provide the new password filename while HP Shadowbase is running.

The syntax is:

```
LICENSE <password file>
```

password file

This is a license file received from HP Shadowbase upon purchase of the product. It permits use of the product on a specific node for a specific period of time.

Note: You must issue a LICENSE command before any SET or ADD commands. It must appear on a line by itself. It cannot contain any embedded comments nor can it end with a semicolon.

HP NonStop Shadowbase license validation procedures now include checks for the licensed system tier, CPU count, and number of licensed core per CPU where applicable (the HP Shadowbase software is licensed based on the “tier” of the NonStop system as well as the number of CPU’s on that node – for more information, contact HP Shadowbase Support). Also note that the AUDCOM INFO AUD command will now display more detail pertaining to your license as the following output example shows.

```
LICENSE for [\S1]:  
ETWOW,NSK_SOURCE,NSK_TARGET,NSK_LOADER,NSK_LISTENER,TPSPY,CPU  
255,TIER 1,0/9/14/NSR-J;1/9/14/NSR-J;IDENTIFIED  
CPU(S) 2,IDENTIFIED TIER 2,[E], expiration 2015-11-04.
```

OBEY Command

The OBEY command causes commands to be read from a specified file. The syntax is:

HP NonStop Shadowbase Command Definitions

Basic Command Descriptions

```
{ OBEY } filename  
{ O }
```

filename

Is the name of the edit file containing commands to read. It can be fully qualified with the volume and subvolume names.

AUDCOM reads and executes commands from the named file until it encounters an EXIT command or end of file. At that point, AUDCOM closes the OBEY file and command input reverts to the file from which the OBEY command was read. Multiple OBEY commands can appear within the command file; OBEY commands cannot appear within OBEY files (no nesting).

OBEYFORM * Command

The OBEYFORM * command displays the parameter values in the SET command format for all configured objects. The syntax is:

```
OBEYFORM [/OUT <listfile>/] { * }
```

listfile

is the name of a file to receive the output. listfile can be an edit file that can subsequently be edited for use.

Note: Parameters that do not have values set are commented out.

Please see the OBEYFORM AUD, COLL, CONS, and DBS command descriptions for example output for the different objects.

OBEYVOL Command

The OBEYVOL command sets the default system, volume, and subvolume for expansion of OBEY file names. The syntax is:

```
OBEYVOL [\system.] [$volume.] subvolume
```

OPEN Command

HP NonStop Shadowbase Command Definitions

Basic Command Descriptions

The OPEN command specifies the name of the AUDMON process to which subsequent commands are directed. This command is useful when more than one HP Shadowbase system is running on the same HP NonStop system; commands can be directed to any AUDMON from a single AUDCOM session. Additionally, multiple users can OPEN the same AUDMON, however only one will be able to change the status of the objects in the environment. If you specified an \$audmon_name when you entered AUDCOM from TACL, an OPEN command is not needed. The syntax is:

```
OPEN  $audmon_name
```

SHOW Command

The SHOW command displays the default setting for file name expansion within AUDCOM commands. The syntax is:

```
SHOW  [/OUT list_file/]
```

An example of the results of entering the SHOW command is shown below:

```
BASIC SESSION CONTEXT SETTINGS:
  AUDMON OPENED: NONE
  SPANOFF
  SPAN AUDMON LIST: NONE
  ADTVOL \H2.$QA.QA5000E
  ASSUME ?
  CMDVOL \H2.$QA.QA5000E
  DICTVOL \H2.$QA.QA5000E
  ERRORS 0
  HISTVOL \H2.$QA.QA5000E
  OBEYVOL \H2.$QA.QA5000E
  SOURCEVOL \H2.$QA.QA5000E
  TARGETVOL \H2.$QA.QA5000E
  TIDVOL \H2.$QA.QA5000E
```

SOURCEVOL Command

The SOURCEVOL command sets the default volume and subvolume for expansion of source DBS file names. The syntax is:

```
SOURCEVOL  [\system.]  [$volume.]  subvolume
```

SPAN Command

The SPAN command establishes a list of AUDMON process names that will receive the subsequent AUDCOM commands. These commands are generally “read-only” in nature, and not command and control in nature. Note that the following commands are supported by “span”: CHECK, DUMPTX, INFO, LICENSE, OBEYFORM, PULSESTATS, STATS, and STATUS. The syntax is:

```
SPAN { <audmon-name> }  
      { ( <audmon-name>[,<audmon-name>...] ) }
```

Note: SPAN is AUDCOM based. That is, the context for the SPAN list is retained for the life of a given AUDCOM session. Once AUDCOM is exited, the settings are lost and new settings must be established.

SPANON Command

The SPANON command is used to enable “span” processing within an AUDCOM session. When enabled, the “span” list of AUDMON processes, established with the SPAN command, will receive subsequent commands. The syntax is:

```
SPANON
```

SPANOFF Command

The SPANON command is used to disable “span” processing within an AUDCOM session if it has been previously enabled with SPANON. The syntax is:

SPANOFF

TARGETVOL Command

The TARGETVOL command sets the default volume and subvolume for expansion of destination DBS file names. The syntax is:

```
TARGETVOL  [\system.]  [$volume.]  subvolume
```

TIDVOL Command

The TIDVOL command sets the default volume and subvolume for expansion of the Consumer transaction status file name. The syntax is:

```
TIDVOL  [\system.]  [$volume.]  subvolume
```

Monitor Command Descriptions

Monitor commands are associated with the definition and control of the HP Shadowbase AUD Object. Commands are available to start and stop a monitor, set limitations on the number of descriptions that can be entered, specify logging requirements, and display configuration status.

These configuration control commands are described below.

ALTER AUD Command

The ALTER AUD command changes the settings for several important elements of AUDMON previously established with the SET and START AUD commands.

In the SET AUD Command description, there is a version box, as in the samples below, with a column titled 'Alter' which is set to 'Yes' for those parameters that can be altered while AUDMON is running. If the value under 'Alter' is 'No' then these parameters cannot be altered once AUDMON is running.

ADTWARNTDIFF seconds

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.000	2.603		900	0	disable/1	32767 Yes

MAXCOLL number

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
1.000			1	1	255	No

The syntax is:

```
ALTER  [ AUD ]  <audmon-name> { , aud_parameter }  
                                [{ , aud_parameter } ]...
```

aud_parameter options can be found in the SET AUD section.

If you receive an error during an ALTER AUD command, do an INFO AUD command to check values. Under certain circumstances, some parameter values may change although an error appears.

See SET AUD Command description, below, for details of the various aud_parameters.

ASSUME Command

The ASSUME command establishes the object type associated with subsequent commands. It keeps the object type from having to be entered for each command. The syntax is:

```
ASSUME object_type
```

object_type is one of the following:

AUD for AUDMON

COLL for CollectorCollector

CONS for ConsumerConsumer

DBS for Database Specification

QMGR for the Queue Manager

ESTATS AUD Command

The ESTATS AUD command serves the same function as the STATS AUD, DETAIL command, but allows for additional filtering and display options.

```
ESTATS [/out <listfile>] {[AUD] [<audmon-name>]
                        [, RESET]
                        [, INTERVAL <num> {HRS}
                                                {MINS}
                                                {SECS}]
                        [, {COLLNAME [<audmon-
                                name>.]<collname>}
                        {SERVERS} ]
                        [, COLLSTATS {OFF}
                                {ALL}
                                {INCLUDE}
                                {EXCLUDE} ]
                        [, CONSSTATS {OFF}
                                {ALL}
                                {DBSSTATS}
                                {FILESTATS} ] }
{[DBS] {<db-name> | *}
  [{, FILESTATS}
  {, DBSSTATS}
  {, ALL} ] }
```

HP NonStop Shadowbase Command Definitions

Monitor Command Descriptions

```
[,CONSNAME <consumer-name>]  
[,COLLNAME <collector-name>] }  
[,MATRIX]  
[,SERVERS]
```

Displays extended resource usage and system performance statistics.

RESET, INTERVAL, COLLNAME, SERVERS options – These options function identically to the corresponding options for the STATS AUD command.

COLLSTATS – The COLLSTATS option specifies what sections of the COLL PARTITION STATS section to display. When set to INCLUDE, only events including in replication are displayed. When set to EXCLUDE, only events excluded from replication are displayed. The ALL value displays both the INCLUDE and EXCLUDE events, and OFF will turn off display for the entire COLL PARTITION STATS section. The default is INCLUDE.

CONSSTATS – The CONSSTATS option determines what CONS statistics sections, if any, to display. When set to DBSSTATS, only the CONS DBS STATS section is displayed. When set to FILESTATS, only the CONS FILE STATS section is displayed. The ALL setting displays both sections, while the OFF setting does not display either section of extended CONS statistics. The default value is DBSSTATS.

INFO AUD Command

The INFO AUD command displays the current values for the options set with the SET AUD commands, and any TACL parameters currently set in the environment. The syntax is:

```
INFO [ / OUT list_file / ] [ AUD ]
```

OUT list_file

Directs the output to a named file. If omitted, the output goes to the AUDCOM list file; this is typically the home terminal.

An example of the results of entering the INFO AUD command is shown below:

```
+INFO AUD  
SHADOWBASE VERSION INFO - V4092 - (17JAN11)  
AUD OBJECT SETTINGS (AUDMON \H2.$JMZM1):
```

HP NonStop Shadowbase Command Definitions

Monitor Command Descriptions

```
ADTWARNRATE 900
.
.
.
TRACEFILE ?
TACL PARAM SETTINGS (AUDMON \H2.$JMZM1):
SAMECPU = 1
SBCOLLFLUSHFACT = 5
SBCOLLTRANSIDTIMER = 5
SBCONSREPOUTPUT = 1
```

If no TACL params were set, the output will be as follows:

```
+INFO AUD
SHADOWBASE VERSION INFO - V4092 - (17JAN11)
AUD OBJECT SETTINGS (AUDMON \H2.$JMZM1):
ADTWARNRATE 900
.
.
.
TRACEFILE ?
NO TACL PARAMS DETECTED (AUDMON \H2.$JZMON)
```

LOG Command

The LOG command specifies the name of an optional file used for reporting changes in status. The syntax is:

```
LOG [ filename ]
```

filename

Is the name of a file to receive reports. When specifying a disk file, the file must be an existing unstructured file. See the *HP NonStop Shadowbase Installation and Planning Manual* for information on pre-creating the log file. The filename can be fully qualified with volume and subvolume names. The filename can also be \$VHS. If omitted, the AUDMON home terminal is used for logging. Entering LOG without a filename will close the current log file.

If a LOG file is not available, AUDMON reports an error to the Event Management System (EMS) Collector process \$0.

OBEYFORM AUD Command

The OBEYFORM AUD command displays the parameter values in the SET command format for the AUD object. The syntax is:

```
OBEYFORM [/OUT <listfile>/] { [AUD] }
```

listfile

is the name of a file to receive the output. listfile can be an edit file that can subsequently be edited for use.

Note: Parameters that do not have values set are commented out.

An example of the results of doing an OBEYFORM AUD command is shown below:

```
+obeyform aud
[BEGIN OBEYFORM OUTPUT AT 2014-08-13:15:17:10]

[SHADOWBASE VERSION INFO - V5010FH06 - (13MAY14)]
[AUD OBJECT SETTINGS (AUDMON \H2.$CJCMS):]
```

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```
SET AUD ADTWARNRATE 900
SET AUD ADTWARNTDIFF 900
SET AUD AUTORESTART ON
SET AUD AUTOSTOP OFF
SET AUD BACKUPCPU 0
SET AUD CONFIRMCONTROL OFF
SET AUD CONFIRMSHUTDOWN OFF
SET AUD HISTORYRATE 3600
[LICENSE    DATE 2014-08-01 ]
SET AUD MAXCOLL 1
SET AUD MAXCONS 5
SET AUD MAXPULSESTATS 2
SET AUD MAXQMGR 0
SET AUD MAXQUERYDUR 60
SET AUD MONITORRATE 300
SET AUD NORUNTIMEOUT 900
SET AUD PULSEMAINTTIME 00:00
SET AUD PULSERETENTION 7
SET AUD STATICTMFserve ON
SET AUD STATSRESET OFF
SET AUD STATSRESETTIME MONTH(ALL),DAY(DAILY),HOUR(00:00)
SET AUD TRACE 0
[SET AUD TRACEFILE ?]
SET AUD UNDOMODE OFF
[SET AUD ALLOWUSERID ?]

[END OBEYFORM OUTPUT AT 2014-08-13:15:17:10]
```

PULSE Command

The PULSE command enables the operator to send a special data packet, known as a 'PULSE' through the replication stream. When completed, the PULSE will provide a series of timings based upon how long it takes the message to transverse the replication stream and return to the source component. These PULSE timing values can then be read by issuing the PULSESTATS command.

Note that there are various pulsing error conditions (such as pulse file full) that can cause AUDMON to disable the pulse feature. The PULSE command can also be used as the trigger to try to re-enable the pulse feature after it becomes disabled.

A CONSGROUP Consumer process grouping concept was also introduced. This new CONS object parameter allows the grouping of a number of Consumer processes into an identifiable group name which can be entered for the PULSE command (and PULSESTATS command). This allows one to logically group a number of related replication threads, for example if multiple replication threads are being used to replicate to a common target database. See later enhancements in the softdoc for more information pertaining to the CONSGROUP parameter details.

The PULSE command supports generating pulse events at the COLL object, CONS object, or CONSGROUP levels. The command syntax for the PULSE command is as follows:

```
PULSE {[COLL] {<collname>}  
        {*  
        }  
        {[CONS] {<consname>}  
        {*  
        }  
        {[CONSGROUP] {<consgroupname>}} [!]
```

Pulsing a Collector (or all Collectors via *) will generate pulses for all source or client Consumers attached to the Collector(s). Pulsing a specific Consumer (or all Consumers via *) will only generate pulses for source or client Consumers. Pulsing a Consumer group will only generate pulses for source or client Consumers in that group. Source or client Consumers are the source of a pulse event; target or server Consumers simply process the pulse event(s) they receive and return them.

The ! (now) option can be used to expedite a pulse. Expedited pulses are not inserted into the TMF audit trail like normal pulses; instead, they are sent directly to the COLL and injected into the replication stream immediately.

Upon successful completion of the PULSE command, a message will be displayed to list the CONS objects that will receive the pulse event. Note that this message will be truncated to about 128 bytes if the list of CONS objects exceeds this limit. This message is to identify the Consumers for which pulse events were generated for an AUDCOM PULSE command. See the sample below for the format of the User Error Message that is displayed.

```
PULSE GEN'D FOR 001 CONS'S: <consname>...
```

PULSESTATS Command

The AUDCOM PULSESTATS command was added in the Version 3.990 release to output pulse statistics related to the flow of a pulse from the SOURCEFILE to the TARGETFILE. Similar to the PULSE command, the PULSESTATS command supports requests at the COLL object, CONS object, or CONSGROUP levels.

The output is grouped by CONS object and is in most recent to oldest time sequence (i.e., i.e., reverse timestamp order). By default, based up the AUD MAXPULSESTATS value, the most recent two pulse file records are output if available when the FROM and TO datetime parameters aren't input. Note that you can SET or ALTER the MAXPULSESTATS to have more pulse records displayed when no FROM and TO clauses are entered.

Each record displayed shows pertinent timestamps that are captured as a pulse travels from its generation into the source pulse file to the target and its completion gets acknowledged back. Note that the datetime (timestamp) values stored in the file are in GMT, however the values displayed are in local civil time (LCT). Also note that the DIFF value durations are the difference between the related timestamp for the field and the creation timestamp (CREATE TS).

Since the pulsing feature relies on timestamps generated by the clocks on the source and target system, these clocks should be synchronized (either with each other or with a GMT timer feed). If they are not, the clocks can drift. This drift can be accounted for by the PULSECLOCKADJ and

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PULSESVRCLOCKADJ parameters (see the respective section for each of these parameters).

If a clock drift exists and the drift is not accounted for by the PULSECLOCKADJ and PULSESVRCLOCKADJ parameters, it is possible that the target clock has drifted either ahead of or behind the source's clock, potentially leading to negative numbers being reported for the time differences in the PULSESTATS output. For example, if the source clock shows 5:10:15 am when the target clock shows 5:08:15 am, the target clock has drifted 2 minutes earlier than the source clock, and a pulse that completes in 30 seconds will show a negative number for the completion "difference". PULSESTATS will display these numbers with the appropriate sign, that is an indication that the clocks have drifted and the user should consider resetting the clocks on either or both systems.

The sample PULSESTATS output below shows a typical pulse record that has "completed" (the pulse record states will be discussed in more detail below).

```
CONS PULSESTATS AT 2010-10-15:09:24:52 :
```

```
=====
NAME: CONS01          PROCESS: \S1.$GSCSX      AUDMON: \S1.$GESM1
```

```
MOST RECENT PULSESTATS (MAXPULSESTATS = 2):
```

```
-----
CONFIG PARAMETERS:      ADTSAMPLEDELAY=3      ADTXSAMPLEDELAY=50
ADTXEOFREPEATS=2        ADTTHROTTLEDELAY=0     ADTTHROTTLELIMIT=1
FASTSAMPLE=OFF          IPMBLOCKING=OFF       PULSEAUTOADJ=? OR N/A
TURBOMODE=ON            TURBOWAITTIME=5       TURBOMAXEVENTS=0
```

```
TGT PROCESS:           \S1.$GSCSX            TYPE:  NONSTOP CONS
CREATE TS (NOW!):       2010-10-15 09:24:47.467271  STATE: COMPLETE
COMPLETE TS:            2010-10-15 09:24:47.503524  DIFF:  00:00:00.036253
COLL RECV TS:           2010-10-15 09:24:47.481192  00:00:00.013921
COLL SEND TS:           2010-10-15 09:24:47.481256  00:00:00.013985
SV RECV TS:             2010-10-15 09:24:47.488025  00:00:00.020754
SV I/O START TS:        2010-10-15 09:24:47.495443  00:00:00.028172
SV I/O END TS:           2010-10-15 09:24:47.503524  00:00:00.036253
MON NOTIFY RECV TS:     2010-10-15 09:24:47.518134  00:00:00.050863
CONS USRX CALLS:        0                        DUR:   00:00:00.000000
```

```
-----
CONFIG PARAMETERS:      ADTSAMPLEDELAY=3      ADTXSAMPLEDELAY=50
ADTXEOFREPEATS=2        ADTTHROTTLEDELAY=0     ADTTHROTTLELIMIT=1
FASTSAMPLE=OFF          IPMBLOCKING=OFF       PULSEAUTOADJ=? OR N/A
TURBOMODE=ON            TURBOWAITTIME=5       TURBOMAXEVENTS=0
```

```
TGT PROCESS:           \S1.$GSCSX            TYPE:  NONSTOP CONS
CREATE TS:              2010-10-15 09:24:36.206542  STATE: COMPLETE
COMPLETE TS:            2010-10-15 09:24:41.393364  DIFF:  00:00:05.186822
ADT EVENT TS:           2010-10-15 09:24:36.209498  00:00:00.002956
COLL ADT READ TS:       2010-10-15 09:24:36.247596  00:00:00.041054
COLL SEND TS:           2010-10-15 09:24:41.282950  00:00:05.076408
SV RECV TS:             2010-10-15 09:24:41.299540  00:00:05.092998
SV I/O START TS:        2010-10-15 09:24:41.312873  00:00:05.106331
SV I/O END TS:           2010-10-15 09:24:41.393364  00:00:05.186822
MON NOTIFY RECV TS:     2010-10-15 09:24:41.728256  00:00:05.521714
CONS USRX CALLS:        0                        DUR:   00:00:00.000000
```

```
-----
NUMBER OF PULSES FOR CONS CONS01:
```


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TOTAL DISPLAYED	2	TIMED OUT	0
ACTIVE (INCOMPLETE)	0	INCOMPLETE	0
IN BAND	2	OUT OF BAND	0
=====			

The following defines the content for each pulse record displayed.

Note: That the data content displayed is based upon what is made available by the target environment, e.g., a HP NonStop or HP Shadowbase Other Servers target (the example above is for a HP NonStop target). Contact HP Shadowbase Support to find out availability information.

CONFIG PARAMETERS – This section outputs a number of important configuration parameters that were configured at the time of the related pulse event. The COLL object parameters displayed are: ADTSAMPLEDELAY, ADTXSAMPLEDELAY, ADTXEOFREPEATS, ADTTHROTTLEDELAY, ADTTHROTTLELIMIT, FASTSAMPLE, TURBOMODE, and TURBOWAITTIME. The CONS object parameters displayed are: IPMBLOCKING and TURBOMAXEVENTS.

These parameters all affect replication latency and need to be accounted for when you determine your pulsing thresholds. For example, you cannot maintain a five (5) second replication latency (SLA) threshold when your ADTSAMPLEDELAY and your TURBOWAITTIME (assuming TURBOMODE is ON) parameters sum to greater than 5 seconds. The reason is because these settings tell HP Shadowbase how long to wait (max) before it is required to check for or replicate the application data. Hence, you must be very careful in choosing pulsing and alarm thresholds that make sense given your replication configuration.

TGT PROCESS – This is the process name of the process doing the target I/O.

TGT TYPE – This is process type of the process doing the target I/O. Possible values are: OPEN DOCWR, OPEN DIRECT, OPEN TRS, NONSTOP CONS, and NOT KNOWN YET (this is used when a pulse response has not been received yet).

DOCWR PROCESS – This is the DOC Writer process name if one is being used for the particular replication environment.

CREATE TS – This is the time when the pulse event was inserted into the pulse file on the source by AUDMON. Along with the CONS process name, this is used to track the pulse. “(NOW!)” is displayed in this field when the PULSE ! (now) option is used.

STATE – This is the state of the pulse event. Possible values are:

- INCOMPLETE (in progress or never completed),
- ACTIVE (incomplete but CONS did a pulse file target I/O),
- TIMED OUT,
- COMPLETE (“in band”), i.e., i.e., it completed within the PULSEMAXRESPONSE, and
- COMPLETE-OOB (“out of band”), i.e., i.e., it completed by not within the PULSEMAXRESPONSE.

COMPLETE TS - This is the time after the pulse file target I/O has been performed.

TIMEOUT TS - This is the time when (if) a pulse event times out in AUDMON.

ADT EVENT TS - This is the timestamp of the TMF audit trail record associated with the pulse record.

COLL ADT READ TS - This is the time that the Collector read the pulse event from the TMF audit trail.

COLL SEND TS - This is the time that the Collector sent the pulse event to the Consumer. Setting of this time by the Collector can be disabled by entering the SBCOLLPULSESENT TACL PARAM with the value set to zero before starting AUDMON. See the *HP NonStop Shadowbase Operations Manual* for details on the SBCOLLPULSESENT TACL parameter.

CONS CL RECV TS - For a Consumer client, either going to an HP Shadowbase Other Servers or to a HP NonStop server over TCP/IP, this is the time when the client Consumer received the pulse event from the Collector. Setting of this time by the Consumer can be disabled by entering the SBCONSPULSERECV TACL PARAM with the value set to zero before starting AUDMON. See the *HP NonStop Shadowbase Operations Manual* for details on the SBCONSPULSERECV TACL parameter.

CONS CL SEND TS - For a Consumer client, either going to an HP Shadowbase Other Servers or to a HP NonStop server over TCP/IP, this is the time when the client Consumer sends the pulse event to the open or HP Nonstop server. Setting of this time by the Consumer can be disabled by entering the SBCONSPULSESENT TACL PARAM with the value set to zero before starting AUDMON. See the *HP NonStop Shadowbase Operations Manual* for details on the SBCONSPULSESENT TACL parameter.

SV RECV TS - For a HP NonStop Consumer server or HP Shadowbase Other Servers, this is the time when the server received the pulse event. Setting of this time by the Consumer can be disabled by entering the SBCONSPULSERECV TACL PARAM with the value set to zero before starting AUDMON. See the *HP NonStop Shadowbase Operations Manual* for details on the SBCONSPULSERECV TACL parameter.

SV I/O START TS - This is the time prior to the I/O to the target pulse file.

SV I/O END TS - This is the time after the I/O to the target pulse file.

DOC WR START TS – For an open DOC Writer, this is the time prior to writing a pulse event to the DOC.

DOC WR END TS – For an open DOC Writer, this is the time after writing a pulse event to the DOC.

DOC RD START TS – For an open Transaction Replay Sever (TRS) or Transaction Forwarding Server (TFS), this is the time prior to reading a pulse event from the DOC.

DOC RD END TS – For an open Transaction Replay Sever (TRS) or Transaction Forwarding Server (TFS), this is the time after reading a pulse event from the DOC.

SV ACK SEND TS – This is the time when a HP NonStop server or HP Shadowbase Other Servers sends an acknowledgement that it has processed a pulse event.

CL ACK RECV TS – This is the time when a HP NonStop client Consumer receives an acknowledgement for a pulse event.

MON NOTIFY RECV TS – This is the time when AUDMON receives an acknowledgement for a pulse event.

CONS USRX CALLS - This is the number of user exit calls (for DBS objects where USEREXITID is non-zero) made since startup or since the last pulse event acknowledgement.

CONS USRX DUR – This is the run-time duration (wall clock time) for the calls counted in CONS USRX CALLS.

DIRWR USRX CALLS – For an open Direct Writer, this is the number of user exit calls made since startup or since the last pulse event acknowledgement.

DIRWR USRX DUR – This is the run-time duration (wall clock time) for the calls counted in DIRWR USRX CALLS.

DOCWR USRX CALLS – For an open DOC Writer, this is the number of user exit calls made since startup or since the last pulse event acknowledgement.

DOCWR USRX DUR - This is the run-time duration (wall clock time) for the calls counted in DOCWR USRX CALLS.

TRS USRX CALLS – For an open TRS (or TFS), this is the number of user exit calls made since startup or since the last pulse event acknowledgement.

TRS USRX DUR - This is the run-time duration (wall clock time) for the calls counted in TRS USRX CALLS.

Note: The purpose of USRX CALLS and USRX DUR counters is to count up the amount of time that the HP Shadowbase process is spending in the customer's user exit code.

The PULSESTATS command supports a request for a range of pulse file records. Enter the FROM and TO datetime parameters on the command to request records beginning at a certain datetime (the FROM value) and ending at a certain datetime (the TO value). Again, the records are output in reverse timestamp order (i.e., i.e., most recent to least recent).

Processing pulse records via the PULSESTATS command is performed by AUDMON. The AUD MAXQUERY parameter is used to limit the time AUDMON can spend at one time producing PULSESTATS output. AUDMON will terminate the query if the run-time exceeds MAXQUERY seconds. Note that the contents and structure of the pulse file are supplied in the release (e.g., FUP CREATE syntax and DDL record format) so that you can write custom programs or queries against the pulse file as well. For more information concerning these files see the [HP NonStop Shadowbase Operations Manual](#) Appendix D - HP Shadowbase Files.

For each CONS, summary totals are output showing the total number of pulses displayed, the number of incomplete pulses displayed, the number of pulses displayed that timed out, the number of pulses displayed that are “in band” (i.e., i.e., within PULSEMAXRESPONSE), and the number of pulses displayed that are “out of band” (not within PULSEMAXRESPONSE).

Note: The total does not include the number that have timed out because a pulse can subsequently complete even though it has timed out.

As with the AUDCOM STATS command, the PULSESTATS command supports the INTERVAL parameter. This is used to repeat the PULSESTATS request at intervals. It is subsequently terminated by hitting the break key.

The syntax for the PULSESTATS command is as follows:

```
PULSESTATS [/OUT <listfile>/] {[COLL] {<collname>}
                                     {*      }}
                                     {[CONS] {<consname>}
                                     {*      }}
                                     {[CONSGROUP] {<consgroupname>}}
                                     [, FROM <date-time>]
                                     [, TO <date-time>]
                                     (format [YYYY-MM-DD]:HH:MM)
                                     [, INTERVAL <num> {HRS}
                                     {MINS}
                                     {SECS}]
```

RESET AUD Command

The RESET AUD command resets a HP Shadowbase AUD object parameter from the currently set value to the default system value.

```
RESET  [ AUD ]  [aud_parameter [ , aud_parameter]]
```

aud_parameter options can be found in the SET AUD section.

If aud_parameter is omitted, values for all these parameters are reset. See SET AUD Command description, below, for details of the various aud_parameters.

RUN Command

The RUN command starts execution of the HP Shadowbase system following the configuration and startup of its components. It is typically the last command in the configuration file and is necessary following a cold start. Processing will not commence until this command is issued. The syntax is:

RUN [!]

!
Means ignore any configuration errors.

SET AUD Command

The SET AUD command configures AUDMON. Enter this command before issuing a START AUD command.

In each description, there is a version box. This box contains information, as in the samples below.

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
2.000	2.603	900	0	disable/1 32767	Yes

Initial Version	Changed Version	Values Default	Value Specifications	Alter
2.700		None	Valid CPU number	Yes

To know if your version of HP Shadowbase can use the parameter, the first column titled 'Initial Version', is for when the parameter was first introduced. The next column is for if and when the parameter was last changed. If the parameter has a last changed version then the values in the columns following, are as of that version. The next column provides the default value. Next is provided, either the minimum to maximum values, or the listed value specifications. The value in the last column, titled 'Alter', is set to 'Yes' for those parameters that can be altered while AUDMON is running. If the value under 'Alter' is 'No' then these parameters cannot be altered once AUDMON is running.

The syntax is:

SET [AUD] { aud_parameter } [, { aud_parameter }] ...

aud_parameter options are described below:

ADTWARNRATE seconds

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
2.000	2.603	900	0	disable/1 32767	Yes

Is the rate, in seconds, at which warning messages are sent to EMS. These messages warn that a Collector is falling behind in audit reading based upon ADTWARNTDIFF. The default is 900 seconds (15 minutes); warnings are enabled. The minimum allowable value is 1 second. However, 0 can be entered to disable warnings.

Note: Use caution in reducing this parameter. Significant system resources are required for the processing associated with this parameter. Setting it too low could also negatively impact HP Shadowbase throughput.

ADTWARNTDIFF seconds

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.000	2.603		900	0	disable/1 32767	Yes

Is the time differential, between last audit trail update and the time associated with a Collector's current audit trail reading position, at which warnings will start to be generated to indicate that the Collector is falling behind. The default is 900 seconds (15 minutes). The minimum allowable value is 1 second. However, 0 can be entered to disable warnings.

Note: Use caution in reducing this parameter. Significant system resources are required for the processing associated with this parameter. Setting it too low could also negatively impact HP Shadowbase throughput.

ALLOWUSERID { username }
 { (username [,username] ...) }

Initial Version	Changed Version	Default Value	Value Specification	Alter
5.001		none	NonStop user id	No

Specifies one or more NonStop users or user groups that are allowed to issue commands controlling HP Shadowbase in addition to SUPER.SUPER and the user that issued the START AUD command. The username can either specify a single user in the format GROUP.USER, or it can specify a user group in the format GROUP.*. If a user group is specified, all users in that group will be able to issue control commands to HP Shadowbase. This AUD parameter is not alterable.

AUTORESTART { ON }
 { OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
-----------------	-----------------	--------	---------	---------	---------	-------

HP NonStop Shadowbase Command Definitions

Monitor Command Descriptions

2.700	OFF	OFF	ON	Yes
-------	-----	-----	----	-----

Enables or disables AUDMON from automatically restarting Collectors and Consumers in the event a process fails. Restart behavior is affected by the BACKUPCPU, FAILMAX, FAILRETRYDELAY, and FAILSPAN Collector parameters and by the BACKUPCPU Consumer parameter. The default is OFF.

AUTOSTOP { ON }
{ OFF }

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
2.800		OFF	OFF	ON	Yes

Enables or disables AUDMON from automatically stopping Collectors and the associated Consumers in the event communication with a Collector process is lost. This will not automatically stop a Collector if audit reading is falling behind or if a Collector has abended. The default is OFF.

AUDMON will check the COLL status according to the AUD MONITORRATE <seconds> parameter. See SET COLL ADTAUTOSTOP for setting for the shutdown conditions.

BACKUPCPU num

Initial Version	Changed Version	Values Default	Value Specifications	Alter
2.700		None	Valid CPU number	Yes

This specifies the number of the CPU to be used when AUDMON is to run as a HP NonStop process-pair. It should be a different value than that entered when the AUDMON process was started from TACL. It must be an existing CPU number.

This value defaults to <nothing>, meaning that the AUDMON will not run as a process pair (which means that the AUDMON will not survive a failure of the primary CPU). Supplying any other valid CPU number means that the AUDMON will run as a process pair, with the backup process located in the supplied CPU (which means that the AUDMON will survive a failure of the primary CPU).

CONFIRMCONTROL { ON }
{ OFF }

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
2.000		OFF	OFF	ON	Yes

HP NonStop Shadowbase Command Definitions

Monitor Command Descriptions

When set to ON, the user will be asked to enter Y or N to confirm that the indicated control command (ALTER <object>, SHUTDOWN, STOP <object>) should be executed. When set to OFF, the user will not be prompted for confirmation before the commands are executed. Default is OFF.

CONFIRMSHUTDOWN { OFF }
{ ON }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.092			OFF	OFF	ON	Yes

This parameter is used to have AUDCOM prompt if the STOP or SHUTDOWN command should be processed. The default is OFF. When the parameter is set to OFF, AUDCOM will not prompt. When ON, information regarding the restart position and the audit trail backlog will be output and the user will be asked to confirm the command. At the prompt, the user must then enter “Y” or “N” to indicate if the command should be processed or not. This parameter can be altered at any time.

HISTORYRATE seconds

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.000	4.092	0	0	disable/3600	32767	Yes

Is the number of seconds to delay before capturing the next set of historical operating statistics. The default is 0 – statistics will not be gathered. When a value greater than 0 is entered, AUDMON captures and records historical statistics in a disk file named AUDHST at the specified rate. The minimum allowable value to enable history is 3600 seconds. If HISTVOL is specified, the AUDHST file will be maintained in that volume and subvolume. Otherwise, it will be maintained in the default volume and subvolume. See HISTVOL command description for more information. See the *[HP NonStop Shadowbase Installation and Planning Manual](#)* for more information on AUDHST.

MAXCOLL number

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
1.000			1	1	255	No

Is the maximum number of Collector processes that can be described in the HP Shadowbase configuration. At least 1 must be configured and the

HP NonStop Shadowbase Command Definitions

Monitor Command Descriptions

default is 1. The maximum value is 255. Depending upon your implementation strategy, setting this parameter may not be necessary.

MAXCONS number

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
1.000			1	1	255	No

Is the maximum number of Consumer processes that can be described in the HP Shadowbase configuration. At least 1 must be configured and the default is 1. The maximum is 255. Depending upon your implementation strategy, setting this parameter may not be necessary.

MAXDBSSPEC number

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
1.000	3.960		128	1	2500	No

Is the maximum number of table or file inclusion and exclusion specifications that can be entered into the HP Shadowbase configuration. The minimum is 1. The default is 128.

MAXPULSESTATS number

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.990			2	1	32767	Yes

This defines the number of pulse records displayed for a Consumer during PULSESTATS command processing when a FROM and TO timeframe is not specified. By default, MAXPULSESTATS is 2. The valid range is 1 through 32767. This parameter can be altered at any time.

MAXQUERYDUR seconds

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.990			60	1	32767	Yes

This defines the maximum run-time, in seconds, AUDMON will allow for processing a PULSESTATS command. The query will be terminated early if the run-time exceeds this setting and AUDMON will return an error indicating this has occurred (you can re-enter your PULSESTATS command using a shorter interval). The default is 60 seconds. The valid range is 1 through 32767. This parameter can be altered at any time. Note that you should try to run small size inquiries to avoid delaying other important AUDMON processing (e.g., process state monitoring).

MAXQMGR number

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.090			0	0	255	No

Is the maximum number of Queue Managers which can be configured within this AUDMON instance. The Queue Manager is an optional component of HP Shadowbase: default value is 0, no Queue Managers are configured within AUDMON. Must be set large enough to hold the aggregate number of QMGRS established by the SET COLL MAXQMGR settings for all collectors configured within this AUDMON.

MONITORRATE seconds

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.000	2.603		300	1	32767	Yes

Is the number of seconds to delay before AUDMON verifies to all objects are in operating order. The default is 300 seconds (5 minutes). The minimum is 1 second.

Note: Use caution in reducing this parameter. Significant system resources are required for the processing associated with this parameter. Setting it too low could also negatively impact HP Shadowbase throughput.

NORUNTIMEOUT seconds

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.980C	4.060	Integer	900	0	32767	Yes

As of release v3.980C,a check was added to the HP Shadowbase monitor AUDMON to evaluate if a RUN command has been entered after a Collector has been started. It will also evaluate if a RESUME COLL command has been entered after a SUSPEND COLL command. This verification is done during the AUDMON monitoring cycle based upon the AUD MONITORRATE parameter setting. The AUD parameter NORUNTIMEOUT has been added to define the period of time in seconds to use for the basis of these checks.

If the Collector is not in the “run” state, and the NORUNTIMEOUT duration passes by, then when the verification is done during the monitoring cycle, a critical EMS message will be output to identify the situation. A message will continue to be sent every monitoring cycle, when a subsequent NORUNTIMEOUT duration has past, if the Collector remains in a “started”

or “suspended” state (not running)”. Note again that the timing of the message is not precise and is based from the MONITORRATE period. It could take several MONITORRATE cycles to result in a message if MONITORRATE is set less than NORUNTIMEOUT. Or, it could take a MONITORRATE cycle to result in a message if MONITORRATE is set greater than NORUNTIMEOUT.

The default for NORUNTIMEOUT is 900 seconds.. The valid range is 0 through 32767 seconds. Enter the SET command prior to the START AUD command. Note that NORUNTIMEOUT can be altered at any time.

PULSEMAINTTIME hr:mn

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.990			00:00	1	365	Yes

This AUD parameter, added to support the pulse feature, defines the time (format HOUR:MINUTE using a 24-hour clock) when AUDMON will perform maintenance processing against all pulse files. The default is 00:00 (midnight). Any valid hour:minute setting can be specified, for example 01:45 means 1:45 am, and 13:45 means 1:45 pm. This parameter can be altered at any time.

PULSERETENTION number of days

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.990			7	1	365	Yes

This AUD parameter, added to support the pulse feature, defines the number of days of pulse history that will be retained in a pulse file SOURCEFILE and/or TARGETFILE. The default is 7 days. The valid range is 1 through 365. This parameter can be altered at any time.

Note: That the pulse file needs to be sized to accommodate the pulse records if this parameter is increased, if pulses are generated more frequently than every 5 minutes, or if multiple Consumers use the same pulse file (see the DBS parameter SOURCEFILEEXT for changing the default size of the pulse file).

You should set your DBS object SOURCEFILEEXTENT and TARGETFILEEXTENT parameters accordingly so that there is enough space to support the PULSERETENTION period for the CONS PULSERATE setting which will determine the number of pulses generated in a day for a Consumer. Note that the current pulse record size is 354 bytes.

HP NonStop Shadowbase Command Definitions

Monitor Command Descriptions

STATICTMFserve { ON }
{ OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.000			OFF	OFF	ON	Yes

Tells AUDMON whether to use a static TMFserve process (when set to ON) or a dynamic TMFserve process (when set to OFF) to get information about the TM/MP environment. It defaults to OFF.

STATSRESET { ON }
{ OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.070			OFF	OFF	ON	Yes

This parameter defines if automatic statistics resets will be performed. When OFF (the default), statistics will accumulate until the RESET option is requested with STATS AUD, STATS COLL or STATS CONS command. When ON (enabled), statistics will be reset based upon the method defined by the STATSRESETTIME parameter. The STATSRESET parameter can be altered at any time.

STATSRESETTIME {[MONTH {(1,2,...,12)}
{(ALL)}}}
[,{DAY {(1,2,...,31)}
{(DAILY)}}}
{WKDAY {(1,2,...,7)}
{(WEEKDAY)}}}]

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.070			OFF	OFF	ON	Yes

This parameter defines the day and time the next COLL and CONS processing statistics reset is to occur. The default value is DAILY at 00:00. Either the MONTH, DAY/WKDAY, and HOUR clauses may be specified, **OR** the MINUTE clause may be specified. The STATSRESETTIME parameter can be altered at any time.

- If MONTH (ALL) is entered, the reset will occur each month on the specified days at the specified times. You can also enter the numbers of the months in which the resets are to occur. For example, enter *SET AUD STATSRESET MONTH (2,4,6,8,10,12), DAY (1)* to reset statistics at midnight (the default) on the first day of every February, April, June, August, and October.

- If DAY (DAILY) is entered, the reset will occur every day in the specified months at the specified time. You can also enter the days of the month which the reset are to occur. Enter up to ten numbers separated by commas. For example, enter *SET AUD STATSRESET DAY (1,16), HOUR (12:00)* to reset statistics at noon on the first and sixteenth day of every month (the default).
- If WKDAY (WEEKDAY) is entered, the reset will occur every weekday (not weekends) during the specified months at the specified times. You can also specify the days of the week when the reset is to occur. Enter up to seven numbers separated by commas to indicate the days of the week (1 = Monday... 7 = Sunday). For example, enter *SET AUD STATSRESET WKDAY (1,5), HOUR (HOURLY)* to reset statistics every hour on every Monday and Friday.

Note: DAY and WKDAY should not be entered together.

- HOUR (HOURLY) will cause the reset to occur hourly, on the hour, on the specified days of the specified months. You can also enter a list of hours when the reset will occur. Enter up to 12 time values in HH:MM format based on a 24-hour clock. For example *SET AUD STATSRESET MONTH(1,6), HOUR (00:00,12:00,17:30)* to reset statistics at midnight, noon, and 5:30PM each day (the default) in January and June only.

OR

- Entering MINUTE <minutes> will cause the reset to occur every <minutes> minutes, where <minutes> is a number from 1 to 60. For example, enter *SET AUD STATSRESETTIME MINUTE (45)* to reset statistics every 45 minutes.

Note: The MINUTE clause should not be entered with any of the other clauses.

TRACE level_number

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.000		0	disable	0	3	Yes

Disables or sets the trace level for AUDCOM and AUDMON event tracing. Level_number specifies the level of detail supplied in the trace. 0 through 3 are valid level_numbers. The default is 0, which disables tracing. A setting of 1 dumps most function names as they are called, 2 dumps additional function names, and detail for certain functions. A setting of 3 dumps detail on additional functions, including COLL/CONS ipc message content, and buffers for certain events.

HP NonStop Shadowbase Command Definitions

Monitor Command Descriptions

Note: Tracing generates a lot of additional overhead, and will significantly affect performance. Tracing should never be enabled except under direction from HP Shadowbase Support.

TRACEFILE filename

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
2.000		None	Valid file name	Include NODE	Yes

When tracing is enabled, this identifies the file name where the results are to be output. The filename can be fully qualified with volume and subvolume names. The file can be an edit-type disk file, spooler file or the home terminal. If writing to a disk file and you anticipate a lot of trace output, pre-creating the disk file with larger extent sizes than the product will create is recommended. The product creates the disk file with extents (1 pages, 28 pages, maxextents 559). If the TRACEFILE becomes full, HP Shadowbase will continue to run, but will not write anymore trace output.

UNDOMODE { ON }
 { OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
5.001		OFF	OFF	OFF	ON	No

When set to ON, the HP Shadowbase environment is configured for UNDO operations. UNDO operations are mutually exclusive from normal HP Shadowbase replication, so separate environments must be configured in order to do each. When OFF, normal replication will be performed by the environment.

SHOW AUD Command

The SHOW AUD command displays the current values of the AUD objects (as set by the SET AUD command) for this AUDCOM session.

```
SHOW [ /OUT list_file/ ] [ AUD ]
```

OUT list_file

HP NonStop Shadowbase Command Definitions

Monitor Command Descriptions

This directs listing the output to a named file. If this option is omitted, listing output is directed to the AUDCOM list file; this is typically the home terminal.

An example of the results of doing an SHOW AUD command is shown below:

```
AUD OBJECT SETTINGS:
  ADTWARNRATE 900
  ADTWARNTDIFF 900
  AUTORESTART OFF
  AUTOSTOP OFF
  BACKUPCPU ?
  CONFIRMCONTROL OFF
  CONFIRMSHUTDOWN OFF
  HISTORYRATE 0
  MAXCOLL 1
  MAXCONS 1
  MAXDBSSPEC 128
  MAXPULSESTATS 2
  MAXQMGR 0
  MAXQUERYDUR 60
  MONITORRATE 300
  NORUNTIMEOUT 900
  PULSEMAINTTIME 00:00
  PULSERETENTION 7
  STATICTMFserve OFF
  STATSRESET OFF
  STATSRESETTIME MONTH (ALL) , DAY (DAILY) , HOUR (00:00)
  TRACE OFF
  TRACEFILE ?
  UNDOMODE OFF
  ALLOWUSERID ?
```

SHUTDOWN Command

The SHUTDOWN command is used to shut down the HP Shadowbase environment. It stops the Collectors and Consumers. When all these processes are down, it stops AUDMON.

```
SHUTDOWN [!]
```

!

If the ! (now) option is used, the CONFIRMSHUTDOWN parameter will not be considered, and the command will be run without additional confirmation.

Note: It is highly recommended that you review the *Stopping HP Shadowbase* section in the *HP NonStop Shadowbase Operations Manual* before issuing a SHUTDOWN command.

START AUD Command

The START AUD command starts the HP Shadowbase system. The syntax is:

```
START [ AUD ]      { [ COLD ] }  
                   { [ COOL ] }  
                   { [ WARM ] }
```

COLD

This starts the HP Shadowbase system using the configuration information specified in the configuration input file processed by AUDCOM. A cold start must be performed initially. Then you can use the COOL or WARM option. A control file is created in this start mode. If one already exists, it is purged and recreated. COLD is the default start mode.

COOL

This starts the HP Shadowbase system using the configuration information stored in the control file from a previous COLD start. The configured objects are only ADDED. CAPTURE, START and RUN commands are not executed.

WARM

This starts the HP Shadowbase system using the configuration information stored in the control file from a previous COLD start. The configured objects are ADDED. The objects are returned to the last state they were in before a shutdown (i.e., released, captured, suspended, suspupd, stopped, started, and running).

STATS AUD Command

Displays statistics from the entire HP Shadowbase environment. At the highest, it shows the adt position and last event time for all Consumers, Queue Managers, and Collectors in the environment, or optionally, for a single Collector and its attached Consumers and Queue Managers. Event counts are available at the more detail level using the STATS AUD, DETAIL command.

The syntax is:

HP NonStop Shadowbase Command Definitions

Monitor Command Descriptions

```
STATS [/OUT <listfile>/] {[AUD] [,DETAIL]
                                [,RESET]
                                [,INTERVAL  <num> {HRS}
                                                {MINS}
                                                {SECS}]}
                                [{ {COLLNAME <collname>}
                                {SERVERS}} ]]
```

DETAIL – This option requests that the file and/or DBS level statistics be displayed. Note that the COLL and CONS EXTENDEDSTATS parameter definition will determine what will be provided.

RESET – This option will cause all statistics, including those associated with STATS COLL, STATS CONS, and STATS QMGR to be reset to zero. Note that only the last event report is displayed when this option is requested. Also, note that extended statistics will be reset for a COLL or CONS, if the RESET option is entered on STATS COLL or STATS CONS.

INTERVAL – This option will cause the STATS AUD report to be generated repeatedly based upon the value entered. The break key is used to end the request.

COLLNAME – This option requests that only the identified COLL object and its associated CONS objects be displayed.

SERVERS – This option will be used in the future to request that only STP tcp/ip CONS servers be displayed.

The “COLL PARTITION STATS” section will show audit trail event counts for included (INCL) file/table partitions and excluded (EXCL) file/table partitions. Note that if subvolume screening is enabled, those partitions that are not of the requested subvolumes (as specified by the DBS objects) will not be displayed.

The STATS AUD command will now show the HP NonStop Shadowbase product T-Number, and release version.

The output is displayed as follows:

```
SHADOWBASE - T1122 - V6100J06 - (08AUG14)
STATS AUD AT 08-26 10:04:47

=====
AUDMON: \GRAVIC1.$PAUDM  CPU: 00      STATS RESET AT: 08-26 10:04:30  (COMMAND)
=====
```

HP NonStop Shadowbase Command Definitions

Monitor Command Descriptions

-----		COLL/QMGR/CONS AS OF 08-26 10:04:47.495191 -----					
NAME	CPU	PNAME	ADT	POSITION	LE	TIME	DIFF (CUR)
-----		-----					
SYSTEM: \GRAVIC1							
COLL-PCOLL	1	\$PCOLL	AA000372	01772863261	08-26	10:04:34	00:00:13.183
SYSTEM: \GRAVIC1							
CONS-OPN-PCON1	0	\$PCON1	000000	000000000000	??-??	??:??:??	00:00:00.000
CONS-OPN-PCON2	0	\$PCON2	000000	000000000000	??-??	??:??:??	00:00:00.000
CONS-OPN-PCON3	0	\$PCON3	000000	000000000000	??-??	??:??:??	00:00:00.000
CONS-OPN-PCON4	0	\$PCON4	000000	000000000000	??-??	??:??:??	00:00:00.000
=====							

The COLL and CONS EXTENDEDSTATS parameters can be used to specify what is collected and displayed. Additionally, all COLL and CONS statistics (i.e., i.e., the extended statistics reported with STATS AUD and the statistics reported with STATS COLL and STATS CONS) can be automatically reset based upon a time definition. The AUD STATSRESET and STATSRESETTIME parameters have been added for this feature.

In DETAIL mode, the IGNORE field is a counter for all events that are skipped by the Consumer. This includes events not processed directly by the Consumer because a user exit called SBSETIGNORE and transaction backout events skipped because the Consumer did an abort transaction.

There are cases where the original event is applied to the target as a different type of final event. When INSERTNOTFOUND ON, for example, the output from STATS AUD, DETAIL will display as follows:

```
+STATS AUD, DETAIL
STATS AUD AT 02-02 14:40:50

...


-----CONS DBS STATS-----
v ORIG EVENT v >>>>>>>>>>>>>>>> FINAL EVENT <<<<<<<<<<<<<<<<<<<<
NAME                INS/CRT      UPD/ALT      DEL/PRG      IGNORE      TOTALS
-----
SYSTEM: \H1
CONS JZCN1
    DBS: DBS-JZCN1-KEY-1
        DO INSERT          0              0              0              0              0
        DO UPDATE          1              0              0              0              1
        DO DELETE          0              0              0              0              0
        UNDO INSERT        0              0              0              0              0
        UNDO UPDATE        0              0              0              0              0
        UNDO DELETE        0              0              0              0              0
        CREATE             0              0              0              0              0
        ALTER              0              0              0              0              0
        PURGE              0              0              0              0              0
        PURGEDATA          0              0              0              0              0
        TOTALS             1              0              0              0              1

=====
```

The columns on the left represent the original event type in the audit trail and the numerical values in the columns to the right represent the number

of events applied as an INS/CRT, UPD/ALT, or DEL/PRG. The Totals of original events are summed on the right-most column, and the totals of the final (applied) events are totaled in the bottom row.

The sample display indicates that the original DO UPDATE event was tried, the record on the target could not be found, and since DBS INSERTNOTFOUND ON, it was changed to an insert and applied as an INS/CRT final event.

STATUS AUD Command

The STATUS AUD command displays the status information about the AUDMON environment. The syntax is:

```
STATUS [ / OUT list_file / ] [ AUD ]
```

OUT list_file

directs listing output to a named file. If this option is omitted, listing output is directed to the AUDCOM list file; this is typically the home terminal.

The STATUS AUD output was updated to show the source pulse files that AUDMON has opened in release ve3.990. Note that it also shows the “CLEANED” time when the last file maintenance cycle was successfully performed (this is controlled by the PULSEMAINTTIME parameter).

As of release v4.000D, the STATUS AUD output has also been enhanced to show active SOLV processes. The SOLV “name” is derived from the prefix “SOLV-” followed by its process name. It is listed and indented under the Consumer that it was attached to when it was started.

As of release v4.090, the STATUS AUD output has also been enhanced to show active QMGR processes.

The UNDOMODE indicator signifies the STATUS AUD command was requested during an UNDO processing sequence (v5.001).

The STATUS AUD command will now show the HP NonStop Shadowbase T-Number, and product version number.

```
SHADOWBASE - T1122 - V6100J06 - (08AUG14)
AUD STATUS AT 2014-08-26:09:41:50 :

AUDMON \GRAVIC1.$PAUDM - STATE = RUNNING
CPUS      0:1
OWNER     255,5
CONTROL   OPENED  \GRAVIC1.$QA.QAOPEN.SRMNCCC          [ERROR = 0]
LOG        CLOSED
EMS        OPENED  $0                                  [ERROR = 0]
PULSE      OPENED  \GRAVIC1.$QA.QAOPEN.MPULSE          [ERROR = 0]
```

HP NonStop Shadowbase Command Definitions

Monitor Command Descriptions

TRACE	CLOSED				
HISTORY	ON	\GRAVIC1.\$QA.QAOPEN.AUDHST			[SQLCODE = 0]
COLLECTOR/QMGR/CONSUMER/SOLVMGR STATES:					
NAME	PROCESS	TYPE	STATE	STATE CHANGE	TIME
-----	-----	----	-----	-----	-----
COLL-PCOLL	\GRAVIC1.\$PCOLL	COLL	RUNNING	2014-08-26:09:39:58	
		LTS (LAST EVENT):		2014-08-26:09:41:48	
CONS-OPN-PCON1	\GRAVIC1.\$PCON1	CONS	RUNNING	2014-08-26:09:40:08	

The following are the possible States for HP Shadowbase objects:

FAILED	All attempts at recovery failed.
IDLE	Object added, but not started.
RECOVERY	An automatic recovery is scheduled for this object.
RUNNING	Object started and processing has begun.
STARTED	Object started via START command, but has not begun processing.
SUSPUDP	Events not allowed to flow to the Consumer due to use of the SUSPENDUPD command.
UNKNOWN	AUDMON attempted to determine current STATE, but could not because the object did not respond within the AUDMON timeout period. Check EMS messages for more information on the STATE of the object.
WAITING	A stand-alone Consumer server is waiting for a connection from a client process (open client or Consumer client).

SWITCH Command

The SWITCH command causes the AUDMON backup process to takeover as the primary process. A BACKUPCPU AUD parameter must be set to indicate the location of the backup process. The syntax is:

```
SWITCH
```

Collector Command Descriptions

Collector commands are associated with the definition and control of Collector processes in a HP Shadowbase system. A Collector process gathers, or collects, changes from the audit trails and passes information about those changes to the Consumer process(es). Commands are available to add and delete Collectors, start and stop Collectors, set and modify attributes, and display information and operating status.

The Collector commands are described below:

ABORTTX COLL Command

The ABORTTX COLL command will cause a TMF abort event to be injected into the audit trail stream for the COLL/CONS. This will cause the CONS to abort the replicated transaction, regardless of the true ending state of that transaction when it was active and terminated inside your system. This command is not permitted for transactions that are still active in TMF.

IT IS HIGHLY RECOMMENDED THAT YOU NOT USE THIS COMMAND UNLESS INSTRUCTED TO DO SO BY HP SHADOWBASE SUPPORT, AND YOU ARE COMPLETELY CERTAIN OF THE OUTCOME. MANUALLY ENDING TRANSACTIONS COULD RESULT IN TARGET DATABASE INCONSISTENCIES OR DATA CORRUPTION DUE TO SELECTING THE WRONG COURSE OF ACTION FOR A GIVEN TRANSACTION. USE THIS COMMAND ONLY UNDER THE ADVICE OF GRAVIC, INC. OR AT YOUR OWN RISK.

The syntax for ABORTTX is as follows. The <collname> is the name of the COLL that is tracking the transaction. The TRANSID can be entered in external or internal format and must be a transaction that is active in the COLL's internal tracking list. Use DUMPTX to see the transaction list or INFOTX to see the detailed information for this specific transaction. Note that you will be prompted to confirm this command.

```
ABORTTX [ COLL ] [<audmon-name>.]<collname>, TRANSID  
<num>
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

ADD COLL Command

The ADD COLL command enters a description of a Collector into the HP Shadowbase configuration. This command is entered after the appropriate SET commands for the Collector have been issued. The syntax is:

```
ADD [ COLL ] [<audmon-name>.<coll_name>]
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

coll_name

Is the logical name of the Collector; the name can have from one to 16 alphanumeric or hyphen characters. It must start with a letter and must be unique within the HP Shadowbase system.

ALTER COLL Command

The ALTER COLL command changes the attributes of a previously defined Collector process.

In the SET COLL command description, there is a version box, as in the samples below, with a column titled 'Alter' which is set to 'Yes' for those parameters that can be altered while running. If the value under 'Alter' is 'No' then these parameters cannot be altered once AUDCOLL is started.

ADTSAMPLEDELAY units (seconds or hundredths of seconds)

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
1.000	2.700	30	1	32767	Yes

ADTSCRATCHXVOLnn [\$volume.]subvolume

Initial	Changed
---------	---------

HP NonStop Shadowbase Command Definitions

Collector Command Descriptions

Version	Version	Values	Default	Alter
3.700		None	Valid subvolume	No

The syntax is:

```
ALTER [ COLL ] [<audmon-name>.<coll_name> { , coll_param } [
, coll_param ]...
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

coll_name

Is the logical name of a previously defined Collector.

coll_param

Is any attribute to be changed. A coll_param consists of a parameter keyword and a value or set of values for that parameter. Available parameters can be found in the SET COLL section.

If you receive an error during an ALTER COLL command, do an INFO COLL command to see if any values have changed.

See the SET COLL command description for more information on the coll_parameters.

CLEARTX COLL Command

The CLEARTX COLL command will cause a COLL to remove a transaction from its internal transaction tracking list and can be used regardless of a transaction's status in TMF.

USE THIS COMMAND VERY CAUTIOUSLY, ONLY AFTER CONSULTATION WITH HP SHADOWBASE SUPPORT, AS IT COULD LEAVE ACTIVE TRANSACTIONS IN TMF FOR A CONS (AND THESE ACTIVE TRANSACTIONS MAY EVENTUALLY BE AUTOMATICALLY ABORTED BY TMF ON THE TARGET SYSTEM, REGARDLESS OF THE EVENTUAL END STATE OF THE ORIGINAL TRANSACTION ON THE SOURCE SYSTEM). USE OF THIS COMMAND MAY RESULT IN TARGET DATABASE INCONSISTENCIES WITH THE SOURCE DATABASE.

The TRANSID entered is the original audit trail transaction identifier that was captured by the COLL, not the CONS's replication transaction identifier for the TMF transaction it starts.

The syntax for CLEARTX is as follows. The <collname> is the name of the COLL object that is tracking the transaction. The TRANSID can be entered in external or internal form and must be a transaction that is active in the COLL's internal tracking list. Use DUMPTX to see the transaction list or INFOTX to see the detailed information for this specific transaction. Note that you will be prompted to confirm this command. If the transaction is still active in TMF, you will be prompted two times.

For the Collector, you can CLEARTX multiple transactions at a time using the AGE option. The AGE value is expressed in minutes, and the removal cut-off is determined by taking the last read audit trail event timestamp and subtracting this AGE value from it. The Collector will then go through the transactions it is tracking and remove those up to this timestamp cut-off, logging messages to EMS for each transaction cleared.

The following are some restrictions on the AGE option:

- A transaction will be skipped during the aging if it is still active in TMF. An EMS message will be output indicating that this transid was skipped.
- The AGE value must be greater than the TMF AUTOABORT time.
- The AGE value must be greater than a Collector's bi-directional "goback" duration, which is about 15 minutes by default.

```
CLEARTX [COLL] [<audmon-name>.<collname>, { TRANSID <num> }  
                                     { AGE <minutes> }
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

COMMITTX COLL Command

The COMMITTX COLL command will cause a TMF commit event to be injected into the audit trail stream for the COLL/CONS. This will cause the CONS to commit the replicated transaction, regardless of the true ending

state of that transaction when it was active and terminated inside your system. This command is not permitted for transactions that are still active in TMF.

IT IS HIGHLY RECOMMENDED THAT YOU NOT USE THIS COMMAND UNLESS INSTRUCTED TO DO SO BY HP SHADOWBASE SUPPORT, AND YOU ARE COMPLETELY CERTAIN OF THE OUTCOME. MANUALLY ENDING TRANSACTIONS COULD RESULT IN TARGET DATABASE INCONSISTENCIES OR DATA CORRUPTION DUE TO SELECTING THE WRONG COURSE OF ACTION FOR A GIVEN TRANSACTION. USE THIS COMMAND ONLY UNDER THE ADVICE OF GRAVIC, INC. OR AT YOUR OWN RISK.

The syntax for COMMITTX is as follows. The <collname> is the name of the COLL that is tracking the transaction. The TRANSID can be entered in external or internal format and must be a transaction that is active in the COLL's internal tracking list. Use DUMPTX to see the transaction list or INFOTX to see the detailed information for this specific transaction. Note that you will be prompted to confirm this command.

```
COMMITTX [ COLL ] [<audmon-name>.]<collname>, TRANSID <num>
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

DELETE COLL Command

The DELETE COLL command removes a Collector from the HP Shadowbase system. A Collector must be stopped before it can be deleted. The syntax is:

```
DELETE [ COLL ] [<audmon-name>.]coll_name
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

coll_name

Is the logical name of the Collector to be deleted.

DUMPTX COLL Command

DUMPTX COLL can be used to request a listing of transactions being tracked by a COLL. The command syntax for the DUMPTX command is as follows:

```
DUMPTX /OUT <listfile>/ [COLL] [<audmon-name>.]{{ <collname>}  
                                { *}}  
                                [,LISTCOUNT<num>] [,RESET]
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

DUMPTX can be requested for a specific COLL object by specifying its name or for all COLL objects by specifying *. LISTCOUNT is used to control the maximum number of transactions in the list. By default, all of the transactions will be output. The OUT file is where the output will be displayed, and could be a spooler location, terminal name (including the home terminal where AUDCOM is running), or a disk file name. If the OUT file is not specified, output will be sent to the AUDCOM's home terminal. RESET will cause the OUT file to be cleared by the first process outputting to it (e.g., when a disk file is being re-used for output). If a disk file name is specified, the file is created as a type 101 edit file. Note that if an unstructured file is pre-created, it must be created with the ODDUNSTR attribute enabled.

Note that large dumps can suspend processing of the COLL process while the output is being generated, so use this command sparingly, generally only at the request of HP Shadowbase Support. Before entering this command, one should have an idea how large the transaction list might be. This can be determined by checking the transaction busy counters in the STATS COLL output.

The information output for the transactions generally identifies timestamps and audit trail positional information, as well as the current state of the transaction. The COLL output also identifies the transaction that is associated with the restartfile restart point and which CONS objects are participating in the processing of the replicated transaction. State and other internal information is also output that might be needed by HP Shadowbase Support for trouble-shooting any potential questions or issues associated with HP Shadowbase's transaction tracking.

HP NonStop Shadowbase Command Definitions Collector Command Descriptions

The following is a sample of the DUMPTX output for a COLL process.

```
COLL DUMPTX TRANSACTION TRACKING DETAIL AT 2011-02-01:11:18:28 :

=====
=====
NAME: COLL01  PROCESS: \S1.$GSC11  AUDMON: \S1.$GESM1

TRANS BUSY: 1
CUR MAT: $AUDIT.ZTMFAT.AA000002  EOF: 230436864

-----
*** RESTART POINT TRANSACTION ***:
ADT TRANSID:      \S1(2).0.1983901 / 216172912130719746
BEGIN ADT EVENT INFO:
  ADT TS (MAT):    2011-02-01 11:18:23.389884  DIFF:
00:00:05.156120
  COLL TS:        2011-02-01 11:18:23.418553  DIFF:
00:00:05.127451
  MAT SEQ/RBA:    2/230432908
LAST ADT EVENT INFO:
  EVENT TS:       2011-02-01 11:18:23.389884  DIFF:
00:00:05.156120
  ID/SEQ/RBA:    AA/2/230432908
STATE:          82-ACTIVE
TMF TRANS STATE: 0-ACTIVE
SUB STATUS:     00
BID TRANSLOG TRANS: NO
BID PEER TRANS: NO  INDICATORS: 0000000000000000
CONS INFO:
  08-CONS01

=====
=====
```

INFO COLL Command

The INFO COLL command displays the current values for the attributes of a Collector. The syntax is:

```
INFO  [/ OUT list_file /]  [ COLL ] [<audmon-name>.] {coll_name }
                                           { * }
```

OUT list_file

HP NonStop Shadowbase Command Definitions

Collector Command Descriptions

This directs listing the output to a named file. If this option is omitted, listing output is directed to the AUDCOM list file; this is typically the home terminal.

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

coll_name

Is the logical name of a previously defined Collector.

*

This displays the current values for the attributes for all Collectors in the HP Shadowbase system.

An example of the results of doing an INFO COLL command is shown below:

```
SHADOWBASE VERSION INFO - V5000 - (30NOV11)
COLL KUCL1 OBJECT SETTINGS (AUDMON \H2.$KUMN):
  ADTAUTOSTOP OFF
  ADTAUXMASK 1111111111111111
  ADTEOFDELAY 0
  ADTSAMPLEDELAY 10
  ADTSCRATCHVOL ?
  ADTSCRATCHXVOL01 ?
  ADTSCRATCHXVOL02 ?
  ADTSCRATCHXVOL03 ?
  ADTSCRATCHXVOL04 ?
  ADTSCRATCHXVOL05 ?
  ADTSCRATCHXVOL06 ?
  ADTSCRATCHXVOL07 ?
  ADTSCRATCHXVOL08 ?
  ADTSCRATCHXVOL09 ?
  ADTSCRATCHXVOL10 ?
  ADTSCRATCHXVOL11 ?
  ADTSCRATCHXVOL12 ?
  ADTSCRATCHXVOL13 ?
  ADTSCRATCHXVOL14 ?
  ADTSCRATCHXVOL15 ?
  ADTSTARTEOF ON
  ADTSTARTNAME ?
  ADTSTARTRBA ?
  ADTSTARTSEQLO ?
  ADTSTARTTIME ?
  ADTSTOPEOF OFF
  ADTSTOPNAME ?
  ADTSTOPRBA ?
  ADTSTOPSEQHI ?
  ADTSTOPTIME ?
  ADTTHROTTLEDELAY 0
  ADTTHROTTLELIMIT 1
  ADTXEOFREPEATS 3
  ADTXSAMPLEDELAY 500
```

HP NonStop Shadowbase Command Definitions

Collector Command Descriptions

```
ARCHIVEACCESS OFF
ARMAXIGNORECNT 1000
ARRETURNNDCRECS OFF
BACKUPCPU ?
CHKPTDELAY 500
CHKPTTIME 300
CHKPTWARNRATE 900
CHKPTWARNTDIFF 8100
CHKPTWARNTDIFFB 8100
CPU 1
CPULIST ( ? )
DEBUG OFF
EXPANDRECOVERY ON
EXTENDEDSTATS ALL
FAILMAX 2
FAILRETRYDELAY 60
FAILSPAN 900
FASTSAMPLE OFF
FASTTRACK ON
GETRECADDRERROK OFF
KEYEDCACHEDEPTH 0
KEYEDONLY OFF
LABELCACHEDEPTH 10
LATENCYTHRESHOLD 0
LATENCYWARNRATE 3600
LOGAGECLEAR ON
LOGAGECLEARBID OFF
MAXCONS 5
MAXCONSWRITES 15
MAXQMGR 1
MEASURE OFF
NEXTDOCTIME MONTH (ALL) , DAY (DAILY) , HOUR (00:00)
NEXTDOCTRIGGER OFF
PRI 99
PROCESS \H2.$KUCL1
PROGRAM \H2.$KGU.KGU5000E.AUDCOLLN
PULSECLOCKADJ 0
RESERVEDBUFFERS 10
RESTARTFILE \H2.$KGU.CONFIGS.RSTKGU
STATS ON
TRACE OFF
TRACEFILE ?
TURBOMODE ON
TURBOWAITTIME 30
```

INFOTX COLL Command

INFOTX COLL can be used to request a listing of a specific transaction that is currently being tracked by a COLL. The command syntax for the INFOTX command is as follows:

```
INFOTX /OUT <listfile>/ [COLL] { [<audmon-name>.<collname>},
TRANSID <num>
```

HP NonStop Shadowbase Command Definitions Collector Command Descriptions

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

INFOTX can be requested for a specific COLL object by specifying its name. The OUT file is where the output will be displayed and is optional. This could be a spooler location, terminal name (including the home terminal where AUDCOM is running, or a disk file name. The home terminal is used when the OUT file is not entered. If a disk file name is specified, the file is created as a type 101 edit file. Note that if an unstructured file is pre-created, it must be created with the ODDUNSTR attribute enabled.

The entered TRANSID can be supplied in either external or internal format.

The output for INFOTX is similar to the DUMPTX output, except that a single transaction is output.

The following is a sample of the INFOTX output for a COLL process.

```
+INFOTX COLL COLL01, TRANSID \S1.0.2759400
COLL INFOTX TRANSACTION TRACKING DETAIL AT 2008-03-12:13:44:33 :

=====
NAME: COLL01  PROCESS: \S1.$GESCL

TRANS INFO:
  ADT TRANSID:      \S1.0.2759400 / 216172962953822208
  BEGIN ADT EVENT INFO:
    ADT TS (MAT):    2008-03-12 13:43:56.673667  DIFF: 00:00:36.999553
    COLL TS:         2008-03-12 13:43:56.682254  DIFF: 00:00:36.990966
    MAT SEQ/RBA:     56/133768
  LAST ADT EVENT INFO:
    EVENT TS:        2008-03-12 13:43:56.673667  DIFF: 00:00:36.999553
    ID/SEQ/RBA:      AA/56/133768
  STATE:            82-ACTIVE
  TMF TRANS STATE:  0-ACTIVE
  BID TRANSLOG TRANS: NO
  BID PEER TRANS:   NO      INDICATORS: 0000000000000000
  CONS INFO:
    08-CONS00
=====
```

NEXTDOC COLL Command

The NEXTDOC COLL command tells the HP Shadowbase Other Servers to switch to the next database of change (DOC) in an open environment. See the *[HP NonStop Shadowbase Installation and Planning Manual](#)* for more information on using the NEXTDOC command. The syntax is:

```
NEXTDOC [ COLL ] [[<audmon-name>.<coll_name> ]
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

coll_name

Is the logical name of a previously defined Collector.

OBEYFORM COLL Command

The OBEYFORM COLL command displays the parameter values in the SET command format for the COLL object. The syntax is:

```
OBEYFORM [/OUT <listfile>/] { [COLL] [<audmon-name>.<collname> }
```

listfile

Is the name of a file to receive the output. listfile can be an edit file that can subsequently be edited for use.

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

collname

Is the logical name of a previously defined Collector.

Note: Parameters that do not have values set are commented out.

An example of the results of doing an OBEYFORM COLL COLL-1 command is shown on the next page:

```
[SHADOWBASE VERSION INFO - V5000 - (30NOV11)]  
[COLL KUCL1 OBJECT SETTINGS (AUDMON \H2.$KUMN):]  
  RESET COLL  
  SET COLL ADTAUTOSTOP OFF  
  SET COLL ADTAUXMASK 1111111111111111  
  SET COLL ADTEOFDELAY 0
```


HP NonStop Shadowbase Command Definitions

Collector Command Descriptions

```
SET COLL ADTSAMPLEDELAY 10
[SET COLL ADTSCRATCHVOL ?]
[SET COLL ADTSCRATCHXVOL01 ?]
[SET COLL ADTSCRATCHXVOL02 ?]
[SET COLL ADTSCRATCHXVOL03 ?]
[SET COLL ADTSCRATCHXVOL04 ?]
[SET COLL ADTSCRATCHXVOL05 ?]
[SET COLL ADTSCRATCHXVOL06 ?]
[SET COLL ADTSCRATCHXVOL07 ?]
[SET COLL ADTSCRATCHXVOL08 ?]
[SET COLL ADTSCRATCHXVOL09 ?]
[SET COLL ADTSCRATCHXVOL10 ?]
[SET COLL ADTSCRATCHXVOL11 ?]
[SET COLL ADTSCRATCHXVOL12 ?]
[SET COLL ADTSCRATCHXVOL13 ?]
[SET COLL ADTSCRATCHXVOL14 ?]
[SET COLL ADTSCRATCHXVOL15 ?]
SET COLL ADTSTARTEOF ON
[SET COLL ADTSTARTNAME ?]
[SET COLL ADTSTARTRBA ?]
[SET COLL ADTSTARTSEQLO ?]
[SET COLL ADTSTARTTIME ?]
SET COLL ADTSTOPEOF OFF
[SET COLL ADTSTOPNAME ?]
[SET COLL ADTSTOPRBA ?]
[SET COLL ADTSTOPSEQHI ?]
[SET COLL ADTSTOPTIME ?]
SET COLL ADTTHROTTLEDELAY 0
SET COLL ADTTHROTTLELIMIT 1
SET COLL ADTXEOFREPEATS 3
SET COLL ADTXSAMPLEDELAY 500
SET COLL ARCHIVEACCESS OFF
SET COLL ARMAXIGNORECNT 1000
SET COLL ARRETURNNDCRECS OFF
[SET COLL BACKUPCPU ?]
SET COLL CHKPTDELAY 500
SET COLL CHKPTTIME 300
SET COLL CHKPTWARNRATE 900
SET COLL CHKPTWARNTDIFF 8100
SET COLL CHKPTWARNTDIFFB 8100
SET COLL CPU 1
[SET COLL CPULIST ( ? )]
SET COLL DEBUG OFF
SET COLL EXPANDRECOVERY ON
SET COLL EXTENDEDSTATS ALL
SET COLL FAILMAX 2
SET COLL FAILRETRYDELAY 60
SET COLL FAILSPAN 900
SET COLL FASTSAMPLE OFF
SET COLL FASTTRACK ON
SET COLL GETRECADDRERROK OFF
SET COLL KEYEDCACHEDDEPTH 0
SET COLL KEYEDONLY OFF
SET COLL LABELCACHEDDEPTH 10
SET COLL LATENCYTHRESHOLD 0
SET COLL LATENCYWARNRATE 3600
SET COLL LOGAGECLEAR ON
SET COLL LOGAGECLEARBID OFF
SET COLL MAXCONS 5
SET COLL MAXCONSWRITES 15
SET COLL MAXQMGR 1
SET COLL MEASURE OFF
SET COLL NEXTDOCTIME MONTH (ALL) , DAY (DAILY) , HOUR (00:00)
```

HP NonStop Shadowbase Command Definitions

Collector Command Descriptions

```
SET COLL NEXTDOCTRIGGER OFF
SET COLL PRI 99
SET COLL PROCESS \H2.$KUCL1
SET COLL PROGRAM \H2.$KGU.KGU5000E.AUDCOLLN
SET COLL PULSECLOCKADJ 0
SET COLL RESERVEDBUFFERS 10
SET COLL RESTARTFILE \H2.$KGU.CONFIGS.RSTKGU
SET COLL STATS ON
SET COLL TRACE 0
[SET COLL TRACEFILE ?]
SET COLL TURBOMODE ON
SET COLL TURBOWAITTIME 30
ADD COLL KUCL1
```

RESET COLL Command

The RESET COLL command resets a Collector parameter from the currently set value to the default value. The syntax is:

```
RESET [ COLL ] [ coll_parameter [ , coll_parameter ] ... ]
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

coll_parameter options can be found in the SET COLL section.

If coll_parameter is omitted, values for all parameters are reset.

This command is typically issued between groups of SET/ADD COLL descriptions. The command does not affect any Collector definition already established with an ADD COLL command.

Some parameters are required and have no default values. If a required parameter is included in the RESET COLL command, the parameter is set to a null value; the parameter must be specified again before adding another Collector description.

RESUME COLL Command

The RESUME COLL command places a suspended Collector into run state. The syntax is:

```
RESUME  [ COLL ]      [<audmon-name>.] { coll_name }
                                     { * }
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

coll_name

This resumes execution of the named Collector.

*

This resumes execution of all suspended Collectors in the HP Shadowbase system.

RESUMEUPD COLL Command

The RESUMEUPD COLL command places all SUSPUPD Consumers attached to the target Collector into run state. The syntax is:

```
RESUMEUPD  [ COLL ]  [<audmon-name>.] { coll_name }
                                     { * }
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

coll_name

This resumes execution of all Consumers attached to the named Collector, including those attached through a Queue Manager.

*

This resumes execution on all SUSPUPD Consumers attached to all Collectors in the HP Shadowbase system.

SET COLL Command

The SET COLL command establishes values for the attributes of a Collector.

In each description, there is a version box. This box contains information, as in the samples below.

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
1.000	2.700	30	1	32767	Yes

Initial Version	Changed Version	Values Default	Value Specifications	Alter
2.000		None	Valid MAT full filename Partial file name up to the AA prefix -1 to reset	No

To know if your version of HP Shadowbase can use the parameter, the first column titled 'Initial Version', is for when the parameter was first introduced. The next column is for if and when the parameter was last changed. If the parameter has a last changed version then the values in the columns following, are as of that version. The next column provides the default value. Next is provided, either the minimum to maximum values, or the listed value specifications. The value in the last column, titled 'Alter', is set to 'Yes' for those parameters that can be altered while running. If the value under 'Alter' is 'No' then these parameters cannot be altered once AUDCOLL is started.

The syntax is:

```
SET [ COLL ] coll_parameter [ , coll_parameter ] ...
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

coll_parameter is one of the following:

ADTAUTOSTOP { ON }
 { OFF }

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
--------------------	--------------------	----------------	---------	---------	-------

HP NonStop Shadowbase Command Definitions

Collector Command Descriptions

2.000	ON	OFF	ON	Yes
-------	----	-----	----	-----

Enables or disables automatic stopping of the Collector process if it falls behind in audit trail reading. This is an optional parameter. The default is ON. When set to ON, it will ensure that the Collector does not negatively affect the functioning of TM/MP on your system. Before AUDMON stops the Collector(s), EMS warning messages will be issued indicating that a potential problem may be developing. When the Collector and its associated Consumers are stopped, an EMS message is also emitted.

ADTAUXMASK value

Initial Version	Changed Version	Values Default	Value Specifications	Alter
3.700		111111111111111	each byte 0 or 1	No

This is used to identify the auxiliary audit trail files, which are to be read by the Collector. The parameter is 15 bytes long and each byte is entered as a zero (0) or one (1) to respectively disable or enable access to an auxiliary. By default all 15 bytes are set to 1 meaning that the Collector will read all auxiliary audit trail files (i.e., i.e., aux01 through aux15) if present in the TMF configuration.

As an example, suppose you have aux01 and aux02 configured in TMF, but only want a Collector to read aux02 because there are tables and files on data volumes associated with aux02 that you want replicated by HP Shadowbase. You would enter the following command so that the Collector only reads aux02:

```
SET COLL ADTAUXMASK 0100000000000000
```

Restricting the reading of auxiliary audit trail files can significantly reduce the amount of data that a Collector needs to process, and can dramatically “speed up” its processing of master audit trail events. However, you need to be careful that restricting the reading of these AUX trails won’t skip data that you want to replicate (e.g., if \$DATA is saved by TMF into auxiliary audit trail file AUX02, and you restrict reading AUX02, you will never be able to replicate this data). Similarly, you need to be careful to place certain HP Shadowbase configuration files, such as the TRANSLOGs in a bi-directional environment, onto audit trails that the Collector will read (i.e., i.e., do not place the TRANSLOGs on auxiliary audit trail files that you skip).

Note: All Collectors read the master audit trail (this contains the pointers to the auxiliary audit trail files, as well as the transaction termination records (such as commit or abort)).

ADTEOFDELAY <hundredths of seconds>

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
4.000D		0	1	32767	Yes

This defines a minimum wait time duration that a Collector will wait (back off) before a (re)"poll" of the TMF master audit trail following all non-rollover end-of-file conditions for the master audit trail, regardless of the activity occurring in the Collector (i.e.,i.e., it always waits for this duration following end-of-file). Note that when ADTEOFDELAY is set greater than zero, ADTSAMPLEDELAY is not taken into consideration. It is specified in 1/100th second units. The default is 0 (i.e.,i.e., this feature is not used by default). The minimum value is 0 and the maximum is 32767. It can be altered at any time.

ADTSAMPLEDELAY <number of seconds or hundredths of seconds>

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
1.000	2.700	30	1	32767	Yes

Is a time interval that says how often the Collector queries the audit trail after hitting EOF on the MAT when running in continuous mode (i.e.,i.e., stop criteria has not been established). This is an optional parameter. Units represent whole seconds if the FASTSAMPLE parameter is set to OFF or hundredths of seconds if it is set to ON. The default is 30 seconds. The minimum value is 1.

Note; that after hitting EOF on the audit trail, the Collector may query the audit trail more frequently than this interval setting suggests. This is because many events cause the Collector to re-check the audit trail while it is waiting for this interval to expire. For example, if the Collector has hit EOF and is waiting for this interval to expire, a STATS COLL command will cause the Collector to check for more audit data.

Also note that the default behavior of the HP ARLIB audit reading routines is to automatically close the audit trail files after hitting EOF; this forces the Collector to re-open these files each time EOF is hit. HP's ARLIB2 audit reading routines do not automatically close the audit files after hitting EOF. You can check which version of audit reading routines are in use by issuing a VPROC on the Collector.

This parameter is ignored when ADTEOFDELAY is set to a value greater than 0.

ADTSCRATCHVOL [\$volume.]subvolume

HP NonStop Shadowbase Command Definitions
Collector Command Descriptions

Initial Version	Changed Version	Values Default	Value Specifications	Alter
2.000		None	Valid subvolume	No

Specifies the default volume and subvolume to which audit trails are restored when HP Shadowbase reads them from tape to disk. Audit trails must reside on a disk on the local system. Therefore, if \systemname is included in this definition it will be ignored. If not specified, the Collector looks for them on disk in the volume and subvolume where TM/MP creates them. It is highly recommended that an ADTSCRATCHVOL be specified because you may need to process an audit trail that is no longer on disk. This value cannot be the same as the live audit trail volume and subvolume; must be unique for each Collector. A Collector process will not start if an ADTSCRATCHVOL is defined for a disk volume that does not exist.

Note: The Collector purges all audit trails that have been processed from a scratch volume (i.e., i.e., those audit trails in the ADTSCRATCHVOL, ADTSCRATCHVOL01, ... subvolumes). It also purges those that have been manually restored (via SNOOP or another method). To disable the purging of scratch audit trails, set the SBCOLLNOSCRPURGE TACL parameter to 1 prior to starting AUDMON. See the *HP NonStop Shadowbase Operations Manual* for details on the SBCOLLNOSCRPURGE TACL parameter.

ADTSCRATCHXVOLnn [\$volume.]subvolume

Initial Version	Changed Version	Values Default	Value Specifications	Alter
3.700		None	Valid subvolume	No

Identifies a subvolume where auxiliary audit trail files will be restored from tape when necessary to do so. Note that nn is set to 01 through 15 for aux01 through aux15. ADTSCRATCHXVOL01 corresponds to aux01, ADTSCRATCHXVOL02 corresponds to aux02, and so on.

Notes:

- You can use the same subvolume for ADTSCRATCHVOL and ADTSCRATCHXVOLnn. However, the subvolume must be unique for all Collector objects.
- The Collector purges all auxiliary audit trails that have been processed from a scratch volume (i.e., i.e., those audit trails in the ADTSCRATCHXVOL, ADTSCRATCHXVOL01, ... subvolumes). It also purges those that have been manually restored (via SNOOP or another method). To disable the purging of scratch audit trails, set the SBCOLLNOSCRPURGE TACL parameter to 1 prior to starting

AUDMON. See the *HP NonStop Shadowbase Operations Manual* for details on the SBCOLLNOSCRPURGE TACL parameter.

- With TMFARLB2 support for TMF format 2 audit trails, HP no longer allows HP Shadowbase to restore audit trails to the HP Shadowbase *audit scratch* subvolumes (i.e., i.e., the subvolumes identified with the COLL ADTSCRATCH(X)VOL(nn) parameters) in situations where the audit trails are no longer on disk but are available in the TMF catalog (i.e., i.e., ARLIB2 removed this capability). When HP Shadowbase needs these trails restored, TMFARLB2 will restore the audit trails to the standard TMF restore volume(s) instead of the ADTSCRATCH(X)VOL(nn) subvolume. The HP Shadowbase Collector will then read it from the TMF restore volume. Note that if disk dumping is enabled in TMF instead of tape and HP Shadowbase needs an audit trail in the archive, TMFARLB2 will read the audit trail from the disk dump location instead of restoring it to the TMF restore volume.
- HP Shadowbase will still look in the ADTSCRATCH(X)VOL(nn) subvolumes for TMF audit trails if these parameters are configured. You can continue to expedite the restores by doing so manually (i.e., i.e., using TMFCOM and SNOOP, etc, you manually put the audit trails in the ADTSCRATCH(X)VOL(nn) subvolumes directly, not via the automatic processing by HP Shadowbase and TMFARLB2), as long as you place the audit trails in the ADTSCRATCH(X)VOL(nn) subvolumes prior to the need for the audit trail by HP Shadowbase.
- **When** ARLIB2 restores the trail to a TMF restore subvolume, that trail is under the management of TMF as far as audit trail retention is concerned. See the TMF parameter MAXRETAINEDATFILES for how to manage how long restored audit trails are retained by TMF.
- HP Shadowbase did not alter its logic for ADTSCRATCH(X)VOL(nn) audit trail cleanup with this release. See the HP Shadowbase SBCOLLNOSCRPURGE parameter for more information.

ADTSTARTEOF { ON }
 { OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.000			OFF	OFF	ON	No

This indicates whether audit reading is to start at the current end of file in the starting audit trail file. This is an optional parameter. The default is OFF. If it is not supplied, the Collector will default to the beginning of the starting audit trail file or the ADTSTARTRBA position.

Note: This parameter will be ignored if the file indicated by the RESTARTFILE parameter exists.

ADTSTARTNAME { adt_filename }
 { adt_filename_prefix }
 { -1 }

Initial Version	Changed Version	Values Default	Value Specifications	Alter
2.000		None	Valid MAT full filename Partial file name up to the AA prefix -1 to reset	No

Is the name of the audit trail file where the Collector begins reading. The volume and subvolume do not have to be supplied if the ADTVOL command has been entered. If adt_filename_prefix (for example, AA) is supplied, ADTSTARTSEQLO will be evaluated to determine the starting file. This is an optional parameter. If -1 is specified, the previously set value for the field is cleared. If it is not supplied, the Collector will default to the current audit trail file in the active audit trail volume and subvolume. Since audit trails can only be read on the local system, do not include a \systemname in the adt_filename, it will be ignored. When processing of non-TMF archive files, this parameter must be set to the location of the first archive file to be processed.

Note: This parameter will be ignored if the file indicated by the RESTARTFILE parameter exists.

ADTSTARTRBA { relative_byte_address }
 { -1 }

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
2.000	3.970	None	-1 reset	1099510579200	No

Is the relative byte address where the Collector starts reading the starting audit trail file established by the ADTSTARTNAME and, possibly, by ADTSTARTSEQLO Collector parameters. Entering -1 will clear the value previously set for the field. This is an optional parameter. If it is not supplied, the beginning of the file is assumed. This parameter cannot be used to position the collector for starting in a bi-directional replication environment.

Note: This parameter will be ignored if the file indicated by the RESTARTFILE parameter exists.

Note: This parameter will be ignored if the parameter ADTSTARTEOF is set to ON.

Note: Effective with the 3.970 release of HP Shadowbase, in support of format 2 TMF audit trails, the limit for the parameter has been increased to 1,099,510,579,200 (i.e., i.e., the current maximum audit trail size).

ADTSTARTSEQLO { seqno }
{ -1 }

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
2.000		None	-1 reset/1	999999	No

In conjunction with `adt_filename_prefix` supplied for ADTSTARTNAME, this is concatenated to the prefix to determine the starting audit trail file. The starting position can be further defined by either ADTSTARTRBA or ADTSTARTTIME if the starting point within a particular sequence number is not to be the beginning of the file. Entering -1 will clear the value previously set for the field. The minimum value is 1. The maximum value is 999999. This is an optional parameter.

Note: This parameter will be ignored if the file indicated by the RESTARTFILE parameter exists.

ADTSTARTTIME { (start_date start_time) }
{ (-1) }

Initial Version	Changed Version	Values Default	Value Specifications	Alter
2.000	3.930	None	-1 reset Date Time	No

Is the starting event time for the Collector to start processing from the audit trail files. `Start_date` is optional. If not entered, the current date is assumed. If `start_date` is entered it must be in the format MMM DD YYYY, where MMM are the first three characters of the month name (e.g., JUN), DD are the day digits and YYYY is the four digit year; YYYY is optional and if omitted the current year is assumed (e.g., JUN 01 2006). If entered, `start_time` must be in the format of HH:MM:SS.t.t. If it is omitted 00:00:00.0.0 is assumed. Entering -1 will clear the value previously set for the parameter. This is an example of setting this parameter: SET COLL ADTSTARTTIME (SEP 26 2005,09:13:00.0.0)

If a specific starting audit trail has been identified with an ADTSTARTNAME Collector parameter, the Collector will open and read

this audit trail first. If the ADTSTARTTIME indicated is lower than the earliest time in the first audit trail read, the Collector will search the TM/MP catalog for the audit trails that contain the desired time. This is an optional parameter. This parameter cannot be used to position the collector for starting in a bi-directional replication environment.

Notes: This parameter will be ignored upon HP Shadowbase startup if the file indicated by the RESTARTFILE parameter exists.

Note: This parameter will be ignored if the parameter ADTSTARTEOF is set to ON.

ADTSTARTTIME uses the TMF master (MAT) audit trail time stamps for positing. On systems configured to use master (MAT) and auxiliary (AUX) audit trail files, the specified date and time values are significant only for the master audit trail. The TMF subsystem stores event data in the AUX file(s) and stores a pointer record in the MAT file following the successful AUX write(s). For example, there can be events in the AUX file that are timestamped between 07:30:01 and 07:30:59 , but the related AUX Pointer record in the MAT file may not have been written until 07:33:01. When this situation is the case and you set your starting ADTSTARTTIME to 07:32:00, these events will be processed (assuming other HP Shadowbase parameters, such as the ADTAUXMASK, do not filter off these events). Similarly, if you set the ADTSTARTTIME to 07:29:00 and the ADTSTOPTIME to 07:32:00, these AUX events will not be processed even though they occurred during this interval (because their AUX pointer record does not occur within this interval).

ADTSTOPEOF { ON }
 { OFF }

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
2.000		OFF	OFF	ON	Yes

When set to ON, this specifies that the Collector is to stop processing the audit trail files when end-of-file is detected in the last file established by the ADTSTOPNAME or ADTSTOPSEQHI Collector parameters. When ON and ADTSTOPNAME and ADTSTOPSEQHI are not be specified, audit trail reading terminates at the first end of audit trail condition encountered on the audit trail currently being read. The default for this parameter is OFF.

ADTSTOPNAME { adt_filename }
 { -1 }

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Initial Version	Changed Version	Values	Default	Value Specifications	Alter
2.000		None	-1	reset only MAT filename	Yes

Is the name of the last audit trail file to be processed. Enter the filename only, not the \systemname, volume or subvolume. HP Shadowbase determines the volume and subvolume from the starting volume and subvolume. This is an optional parameter. Entering -1 will clear the field's value.

ADTSTOPRBA { relative_byte_address }
{ -1 }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.000	3.970	None	-1	reset	1,099,510,579,200	Yes

The Collector stops processing in the last audit trail file established by the ADTSTOPNAME and ADTSTOPSEQHI Collector parameters at this Relative Byte Address. If ADTSTOPRBA is supplied, ADTSTOPTIME has no effect on the stopping point. Entering -1 will clear the value previously entered in the field. This is an optional parameter.

Note: In release v3.970, in support of format 2 TMF audit trails, the limit for the parameter has been increased to 1,099,510,579,200 (i.e., i.e., the current maximum audit trail size).

ADTSTOPSEQHI { seqno }
{ -1 }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter	
2.000			None	-1	reset/1	999999	Yes

In conjunction with adt_filename_prefix supplied for ADTSTARTNAME, this is concatenated to the prefix to determine the last audit trail file to be processed by the Collector when non-continuous mode of operation is desired. The stopping position can be further defined by ADTSTOPRBA or ADTSTOPTIME if the stopping point within a particular sequence number is not necessarily the end of the file. ADTSTOPEOF can also be used in conjunction with ADTSTOPSEQHI to force stopping at the end-of-file. Entering -1 clears the previously value set in the field. The maximum value is 999999. This is an optional parameter.

ADTSTOPTIME { (stop_date, stop_time) }
{ (-1) }

Initial Version	Changed Version	Values Default	Value Specifications	Alter
2.000	3.930	None	-1 reset Date Time	Yes

Is the audit trail event time at which the Collector will stop reading from the audit trail files. Reading will stop when this time is reached. Stop_date is optional. If not entered, the current date is assumed. If stop_date is entered it must be in the format MMM DD YYYY, where MMM are the first three characters of the month name (e.g., JUN), DD are the day digits and YYYY is the four digit year; YYYY is optional and if omitted the current year is assumed. If entered, stop_time must be in the format of HH:MM:SS.t. If it is omitted 00:00:00.0 is assumed. Entering -1 will clear any value previously entered in the field. This is an optional parameter. If a stop file has been explicitly defined, this parameter will have no effect if the time of the last audit record read in the last file is less than ADTSTOPTIME.

Note: Refer to the ADTSTARTTIME parameter for a discussion regarding the timestamps of the events in the MAT and AUX to determine the time range you selected will pick up the events from the audit trails.

ADTTHROTTLEDELAY hundredths

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.700		0	Off	0	1000	Yes

Specifies the length of time (in hundredths of seconds) the Collector waits before reading more audit trail. The ADTTHROTTLE... parameters control CPU usage when the Collector needs to read a lot of audit trail from which very little data are selected (e.g., FUP RELOAD data). Valid values are 0 to 1000. The default value of 0 turns throttling off.

ADTTHROTTLELIMIT num

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.700		1		1	32767	Yes

Specifies the number of audit trail records to read before pausing for the ADTTHROTTLEDELAY time. The ADTTHROTTLE... parameters control CPU usage when the Collector needs to read a lot of audit trail from which very little data are selected (e.g., FUP RELOAD data). Valid values are 0 to 32767.

Note that, by default, the Collector will display an EMS message every 15 minutes when audit throttling is enabled.

If your applications start to encounter the LTMF wait state (application is waiting on TMF) when the Collector is running, this may be because the Collector and TMF are competing for the audit disk I/O resources (this is

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generally true for application waits on COMMITs to complete). If this is the reason, you may be able to mitigate the LTMF wait state by adding Collector throttling to your configuration.

ADTXEOFREPEATS num

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.700			-1	-1/1	2147483647	Yes

Defines the number of poll cycles to repeat on the auxiliary to check for potential subsequent events, when a Collector hits end-of-file on an auxiliary audit trail. If the Collector re-polls and continues to hit consecutive end-of-file conditions after ADTXEOFREPEATS it will then switch back to the master audit trail. By default ADTXEOFREPEATS is set to -1 to indicate indefinite polling. In addition to -1 the valid range for ADTXEOFREPEATS is 1 through 2147483647.

ADTXSAMPLEDELAY units

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.700			500	1	32767	Yes

Defines the number of 1/100th second units to wait before attempting another poll to the same auxiliary, when a Collector hits end-of-file on an auxiliary audit trail. The default is 500 (i.e., i.e., 5 seconds). The valid input range is 1 through 32767.

ARCHIVEACCESS { ON }
{ OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.900			OFF	OFF	ON	No

This parameter is obsolete as of release version v5.000. Please disregard any references still given to this param in either audcom 'INFO COLL' or 'SHOW COLL' command outputs.

ARMAXIGNORECNT <number>

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.970			1000	0	2147483647	Yes

This parameter controls the number of audit trail records read by the TMFARLB2 audit reading routines prior to returning control to the AUDCOLLN process object. The default is 1000 records. You can

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override this by setting the COLL parameter ARMAXIGNORECNT from 0 to 2147483647. When set to 0, TMFARLB2 will not return a “current audit trail position” event. It will continue reading until it has an event to return to HP Shadowbase for processing (i.e., setting the parameter to 0 mimics the AUDCOLL ARLIB1 behavior). Note that ARMAXIGNORECNT can be altered after the Collector has been started.

ARRETURNNDCRECS { ON }
 { OFF }

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
3.970		OFF	OFF	ON	Yes

For AUDCOLLN Collectors only, the COLL object parameter was added in release v3.970. By default, ARRETURNNDCRECS is set to OFF. When OFF, this causes the Collector to call the HP TMFARLIB2 function ARSTOPNONDATAACHNGRECS to notify the audit reading library to not return events associated with SQL partition maintenance operations (these are table partition events that do not change the contents of the rows in the table, only the partition where they are located on the NonStop table) and not to return events generated by the activity of the RDF updater on the RDF backup system.

When ARRETURNNDCRECS is set to ON, the call to ARSTOPNONDATAACHNGRECS is not made and events associated with SQL partition maintenance operations will be seen and processed by HP Shadowbase. This is the way that pre-3.970 HP Shadowbase worked and the 3.970 non-native AUDCOLL works (because it uses TMFARLIB and this feature is only available with TMFARLIB2).

Note that partition maintenance operations sometimes store insert and delete events in the audit trail, and when these events are read, there is no way to determine that they are partition maintenance operations versus actual application insert and delete events. This new flag in ARLIB2 allows the new Collector to suppress these events from being returned to ARLIB2 calls. See the documentation for the TMFARLIB2 function ARSTOPNONDATAACHNGRECS in the *HP NonStop TMF Application Programmer's Guide* for more information.

Note that you can alter ARRETURNNDCRECS after the Collector has been started.

BACKUPCPU num

Initial Version	Changed Version	Values Default	Value Specifications	Alter
2.700		None	Valid CPU number	Yes

Specifies the number of the CPU to be used as a backup for the Collector process (which means the Collector process will run as a persistent process). The CPU for the value entered must exist on the system. If the AUD object AUTORESTART parameter is set to ON and the Collector process fails due to a CPU failure, AUDMON will restart the Collector process in the BACKUPCPU.

The default is no value assigned, meaning the Collector does not run as a persistent process (if its primary CPU fails, it will not be restarted in another CPU).

Note: That the BACKUPCPU can be altered at any time. If altered, the new value will be used in the event a restart is performed.

CHKPTDELAY <hundredths of seconds>

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.000B			500	0	32767	Yes

This defines the minimum time duration to wait between updates to the restart file. It is specified in 1/100th second units. The default is 500 (5 seconds). The minimum value is 0 and the maximum is 32767. When set to 0, the COLL will update the restart file every 262,144 bytes of master audit trail data read (this is the old HP Shadowbase algorithm).

CHKPTDELAY can be altered at any time. Note that CHKPTDELAY should typically be set less than CHKPTTIME which is the maximum time duration to wait before the restart file is updated. Also, note that CHKPTDELAY is not considered during the rollover from one audit trail to the next audit trail. In that case, the restart file is updated without a delay.

CHKPTTIME <number of seconds>

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.960C			300	0 disable	32767	Yes

This defines the timer value for the Collector to wait before refreshing the RESTARTFILE restart position. The valid range is 0 through 32767 seconds. The default is 300 (5 minutes).

Note: Lag checking is disabled when CHKPTTIME is set to 0.

CHKPTWARNRATE <number of seconds>

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.960C	4.090		900	0	2147483647	Yes

This defines the time that the Collector is to wait before outputting an EMS message to indicate that the Collector restart position is lagging behind. The valid range is 0 through 32767 seconds. The default is 900 (15 minutes). If the Collector lags behind and an EMS message is issued and then it catches back up and then lags behind again shortly thereafter, it won't issue another behind EMS until CHKPTWARNRATE time has passed by. Note that it will issue a message to indicate that it has caught up during the next RESTARTFILE refresh after CHKPTTIME has passed by. In v4.090 the maximum value was increased from 32767 to 2147483647 (from a 16-bit value to a 32-bit value).

CHKPTWARNTDIFF <number of seconds>

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
3.960C	4.090	8100	0 disable	2147483647	Yes

This is the lag time used by the Collector to determine if the restart position is lagging behind the current audit trail read position. The restart position is determined to be lagging behind if the difference between the time of last read audit trail record and the time of the current audit trail restart position is equal to or greater than CHKPTWARNTDIFF. As of release v3.980B the CHKPTWARNTDIFF parameter minimum value can now be set to 0. This will disable the check the Collector performs to insure that the normal restart position is advancing. Thus the valid range has changed from 1 through 32767 seconds, to 0 through 2147483647 seconds. The default is 8100 seconds (2.25 hours).

In v4.090 the maximum value was increased from 32767 to 2147483647 (from a 16-bit value to a 32-bit value).

Note: That the EMS messages associated with this checking have been changed to “critical”.

Note: That long-running transactions could result in EMS messages being issued if the CHKPTWARNTDIFF is set lower than the time it takes for the transaction to complete.

CHKPTWARNTDIFFB <number of seconds>

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
3.980B	4.090	8100	0 disable	2147483647	Yes

For a **bi-directional** replication environment this is the lag time used by the Collector to determine if the restart position is lagging behind the current audit trail read position. The restart position is determined to be

lagging behind if the difference between the time of last read audit trail record and the time of the current audit trail restart position is equal to or greater than CHKPTWARNTDIFFB. In release v3.980B the Collector was enhanced to produce EMS warning messages if the bi-directional restart position is not advancing within a threshold defined by the CHKPTWARNTDIFFB parameter plus 12 more bi-directional flush intervals (1 additional hour by default). A message will be generated if the bi-directional restart position falls out of tolerance. A message will be repeated every CHKPTWARNRATE interval if it remains out of tolerance. When it is determined to be back within range, a message is generated to indicate this. In v4.090 the maximum value was increased from 32767 to 2147483647 (from a 16-bit value to a 32-bit value).

CHKPTWARNTDIFFB is specified in seconds, from 0 to 2147483647. The checking is disabled when CHPTWARNTDIFFB is set to 0. The default is 8100 seconds (2.25 hours). 2.25 hours is the standard window that the HP Shadowbase Collector maintains for the bi-directional restart position. Note that CHKPTTIME must be set for the check to be performed. CHKPTTIME is also used for the check associated with the existing CHKPTWARNTDIFF parameter (used to check the normal restart position to make sure it is advancing).

CPU cpu_number

Initial Version	Changed Version	Values Default	Value Specifications	Alter
1.000		None	Valid CPU number	Yes

Specifies the processor where the Collector runs. It is required to add a Collector. Cpu_number must be a valid CPU for your system.

Note: That the CPU can be altered at any time. If altered, the new value will be used in the event a restart is performed.

CPULIST { (cpu-number [, cpu-number]...) }
{ (-1) }

Initial Version	Changed Version	Values Default	Value Specifications	Alter
4.080		-1	Valid CPU number list	Yes

This parameter specifies a list of processors to be used for starting the related COLL or CONS object process. Up to 16 can be specified (0 through 15). The order of usage is the order of the cpu list. If a processor is not available, the next in the list will tried. Note that when the CPULIST is specified, the CPU and BACKUPCPU will not be considered. An appropriate EMS messages will be logged to indicate if a problem occurred attempting to use a processor. A message will be logged to

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indicate which processor is used. The CPULIST can be altered. However, it can't be altered to disabled (-1).

DEBUG { OFF }
 { ONSTART }
 { ONERROR }

Initial Version	Changed Version	Values Default	Value Specifications		Alter
2.000		OFF	ONSTART	ONERROR	No

Specifies whether a Collector enters debug mode and under what condition. This should only be set when HP Shadowbase instructs you to do so for diagnosing problems.

OFF the Collector does not enter debug mode.
ONSTART the Collector enters debug mode on start-up.
ONERROR the Collector enters debug mode on an error event.
If this parameter is omitted, the default is OFF.

EXPANDRECOVERY { OFF }
 { ON }

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
2.700		OFF	OFF	ON	No

This specifies whether a Collector tries to reconnect to the Consumer automatically if there is a failure in the Expand connection between two nodes. The default is OFF. This parameter cannot be set to ON if the RESOLVELOCKSQ parameter is set to ON.

EXTENDEDSTATS { OFF }
 { ALL }
 { EXCLUDE }
 { INCLUDE }

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
4.070		ALL	OFF	ALL	Yes

This parameter specifies whether a COLL will collect extended statistics and, if so, what will be reported for the STATS AUD command. When set to OFF, extended statistics will not be accumulated. When set to ALL, extended statistics will be gathered and both excluded and included file/table partition statistics will be reported. When set to EXCLUDE, only excluded file/table partition statistics will be reported. When set to INCLUDE, only included file/table partition statistics will be reported.

INCLUDE statistics are for those file/table partitions selected for replication.
The default value is ALL. The parameter can be altered anytime.

FAILMAX num

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.700		0	indefinite	0	128	Yes

This specifies the maximum number of failures of a Collector and its related Consumers allowable within the FAILSPAN period. If the AUD parameter AUTORESTART is set to ON and FAILMAX is set to 0, the restart attempts will continue indefinitely. Otherwise, AUDMON will attempt to restart FAILMAX number of times within the FAILSPAN. Valid values are 0 through 128. A value of 1 disables the restart capability.

FAILRETRYDELAY <number of seconds>

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.700		15		1	3600	Yes

Specifies the number of seconds AUDMON will delay between restart attempts when the AUDMON AUTORESTART parameter is set to ON and FAILMAX is set to 0 or greater than 1. The default is 15 seconds. Valid values are 1 through 3600.

Notes:

- If you alter FAILRETRYDELAY while in RECOVERY state, the current timer is cancelled and a new one is set with the new value.
- AUDMON will add an additional 3 seconds to this value during the recovery processing.

FAILSPAN <number of seconds>

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.700		900		0	32767	Yes

Specifies the span of time over which AUDMON will attempt to automatically restart failed processes when the AUD AUTORESTART parameter is set to on and FAILMAX is set greater than 1. The default is 900 seconds (15 minutes). Valid values are 0 through 32767.

FASTSAMPLE { OFF }
 { ON }

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Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.700			OFF	OFF	ON	Yes

When set to ON, it indicates that the units entered for ADTSAMPLEDELAY and TURBOWAITTIME are in hundredths of seconds rather than whole seconds. Default value is OFF.

FASTTRACK { OFF }
{ ON }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.700			ON	OFF	ON	No

When set to ON, the Collector will only track transactions that are replicated. Default value is ON.

GETRECADDRERROK { OFF }
{ ON }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.943	3.970		OFF	OFF	ON	No

When set to ON, HP Shadowbase will ignore audit reading error -14 (ARE_DATA_FILE_NOT_FOUND) when a record address is being fetched. The default value is OFF and the Collector will abend if a -14 error occurs.

An error -14 can occur if a source file is purged before HP Shadowbase processes the audit data for the file. Some application environments purge source files after their use. Depending on the timing, it may be necessary to set GETRECADDRERROK to ON.

In order for TMFARLIB to supply the record address to HP Shadowbase, the file must be present on disk. The Consumer will only allow a record address to not be present for Enscribe entry-sequenced files and Open replication environments.

Notes:

- For Open environments, you should determine if the record address is necessary for your target environment (sometimes a different key is used).
- HP Shadowbase requires a user exit to specify the related record address for updates to entry-sequenced and for unstructured files prior to Version 3.970.

KEYEDCACHEDEPTH num

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.300			128	0 disable	512	No

This sets the cache size to be maintained by audit reading for key sequenced source files/tables. It defaults to 128. The maximum is 512. Setting to 0 turns parameter off, but requires that the KEYEDONLY parameter be set to ON (see below).

KEYEDONLY { OFF }
 { ON }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.300			OFF	OFF	ON	Yes

The keyed file cache is used to track which files are key-sequenced and which are not. If a file is found in the cache (which means it is a keyed file), the call to the ARLIB procedure to get the record address is skipped. If the keyed only parameter is set, all replicated files are treated as key sequenced, so the call to get the record address is never made. Since, in that case, the cache is never checked, its size can be set to 0 to save memory.

If you have no entry-sequenced or relative files (or MP tables) to be replicated, you should set KEYEDONLY on and KEYEDCACHEDEPTH to 0.

Otherwise, you should set KEYEDONLY OFF and the KEYEDCACHEDEPTH to the number of keyed files you are likely to have active at time. Note that setting it to a number less than the number of active key sequence files will just have a small performance penalty in that the procedure to get the record address may get called more frequently than with a larger cache size. KEYEDONLY and KEYEDCACHEDEPTH apply only to the AUDCOLL collector object (non-native code 100).

LABELCACHEDEPTH num

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
1.101			10	1	2000	No

This sets the cache size to be maintained by audit reading for SQL source tables. It defaults to 10. The minimum value is 1; maximum is 2000.

NOTES: For the non-native HP Shadowbase AUDCOLL program, the LABELCACHEDEPTH parameter specifies the number of SQL/MP table label information blocks that the HP TMFARLIB maintains in memory (the TMFARLIB is the audit trail reading library provided by HP). The minimum value specified for this should be 10 and the maximum possible value is 2000. The default value is 10. 32KB of extended virtual memory are allocated for each label block in the TMFARLIB label cache.

For the native HP Shadowbase AUDCOLLN program, the LABELCACHEDEPTH parameter specifies the maximum size (in megabytes) of the TMFARLB2 main extended segment. This memory space will be shared by all memory allocated by TMFARLB2 except that related to audit for SQL/MX objects, including memory reserved for use by audit reading cursors (approximately 100KB each), as well as caching of labels for SQL/MP objects (approximately 32KB each) and caching of label information for Enscribe objects (approximately 50 bytes each). The minimum value specified for this should be 2 and the maximum possible value is 128. The default used by HP Shadowbase is 10.

LATENCYTHRESHOLD hundredths of a second

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.603		0	Off	0	2147483647	Yes

This sets the tolerance for latency monitoring. The value entered is added to the event timestamp from the audit trail and compared to the current time to determine if the Collector is performing within the specified level. Valid values are 0 to 2147483647. The default is 0 and means that Collector latency monitoring is off.

LATENCYWARNRATE <number of seconds>

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.603		0		0	2147483647	Yes

This sets the rate at which EMS messages are generated when the Collector has exceeded or recovers from exceeding the LATENCYTHRESHOLD. Valid values are 0 to 2147483647. Note that you should choose a reasonable value for this parameter for your operating environment. If the value is set too low, it is quite possible that the EMS log will become flooded with messages and impede HP Shadowbase performance. While the default is 0, a value of 60 is recommended when the parameter LATENCYTHRESHOLD is set to a value greater than 0, to avoid flooding EMS when a "behind" condition exists.

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LIKE coll_name

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
2.000			None	Collector Name	No

Sets the attributes of the current Collector to those of the one named in coll_name.

MAXCONS number

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
1.000			1	1	255	No

Is the maximum number of Consumer processes with which the Collector can communicate. The number must be at least 1. The default is 1. The sum of MAXCONS for all Collectors may not exceed the value specified in the SET AUD MAXCONS command. Depending on your implementation strategy, this parameter may not be needed.

LOGAGECLEAR {ON}
{OFF}

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.092			ON	OFF	ON	Yes

This parameter is used to define if the COLL should log transaction “age clear” messages to EMS for transactions it may clear from its transaction tracking list that have been pending too long. Note that this is an unusual circumstance. When ON (the default), this indicates to log the “age clear” messages to EMS for transactions that come after the COLL’s restart point. This can be disabled by setting LOGAGECLEAR to OFF. Note that if the TACL parameter SBCOLLLOGAGEDCLEAR enables logging, the setting of LOGAGECLEAR is not considered. LOGAGECLEAR can be altered at any time.

LOGAGECLEARBID {ON}
{OFF}

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.092			OFF	OFF	ON	Yes

This parameter is used to define if the COLL should log transaction “age clear” messages to EMS for bi-directional peer-CONS transactions it may clear from its transaction tracking list that have been pending too long following a restart. Note that this is an unusual circumstance. When set

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to ON, this indicates to log the “age clear” messages to EMS. The default is OFF to disable logging.

MAXCONSWRITESnumber

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.000			1	1	15	No

Is the maximum number of simultaneous interprocess messages I/Os that can be outstanding to a Consumer (Guardian “nowaited” I/O). This number can be from 1 to 15 (15 is the largest Guardian nowaited I/O depth). The default is 1, which means that each message must be replied to before the next one can be sent (i.e., i.e., interprocess communications is synchronous).

Increasing this value will allow HP Shadowbase to take advantage of parallelism, and improve the overall efficiency of your environment (i.e., i.e., interprocess communications is asynchronous).

In a BASIC/EXTENDED Consumer configuration, if the BASIC Consumer is set for CONTROLTYPE SERIAL, MAXCONSWRITES has no meaning because only one message is written at a time.

If you will be replicating to an HP Shadowbase Other Servers and wish to take advantage of asynchronous communication, this parameter should be set greater than 1, and the CONS NETBUFFERS parameter should be increased accordingly. (See SET CONS NETBUFFERS for more information on asynchronous communication.)

MAXQMGR number

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.090			0	0	255	No

Is the maximum number of Queue Managers with which the Collector can communicate. The Queue Manager is an optional component of HP Shadowbase: default value is 0, no Queue Managers are connected to the Collector. The sum of MAXQMGRS for all Collectors may not exceed the value specified in the SET AUD MAXQMGRS command. If the Collector is to communicate with a QMGR, this value must be set.

MEASURE { ON }
{ OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter

2.000	OFF	OFF	ON	Yes
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Enables or disables the gathering of Measure statistics in the Collector. The default value is OFF. In order for this parameter to take effect, a Measure session must be started first from TACL. A sample Measure session exists in the file MEASINEX that comes with the product. See the *HP NonStop Shadowbase Operations Manual* for more information on using the Measure feature.

```
NEXTDOCTIME { [MONTH      { (1,2,...,12)}
                { (ALL      )}]
               [, { DAY      {(1,2,...,31 )}
                {(DAILY    )}]
                { WKDAY    {(1,2,...,7)}
                {(WEEKDAY)}}]
               [ , HOUR     {(00:00,...,23:59)}
                {(HOURLY)}} ]
               { [ MINUTE   {( <minutes> )}] }
```

Initial Version	Changed Version	Values Default	Value Specifications	Alter
2.200		DAILY	MONTH 1,2,-12, ALL DAY 1,2,-31, DAILY WKDAY 1,2,-7 HOUR 00:00 - 23:59 MINUTE 1-60 minutes	Yes

Defines the day and time the next database of change (DOC) roll is to occur. The default value is DAILY at 00:00. Either the MONTH, DAY/WKDAY, and HOUR clauses may be specified, **OR** the MINUTE clause may be specified.

- If MONTH (ALL) is entered, the DOC will roll each month on the specified days at the specified times. You can also enter the numbers of the months in which the rolls are to occur. For example, enter *SET COLL NEXTDOCTIME MONTH (2,4,6,8,10,12), DAY (1)* to roll the DOC at midnight (the default) on the first day of every February, April, June, August, and October.
- If DAY (DAILY) is entered, the DOC will roll every day in the specified months at the specified time. You can also enter the days of the month on which the roll is to occur. Enter up to ten numbers separated by commas. For example, enter *SET COLL NEXTDOCTIME DAY (1,16), HOUR (12:00)* to roll the DOC at noon on the first and sixteenth day of every month (the default).

If WKDAY (WEEKDAY) is entered, the DOC will roll every weekday (not weekends) during the specified months at the specified times. You can also specify the days of the week on which the DOC is to roll. Enter up to seven numbers separated by commas to indicate the days of the week (1 = Monday... 7 = Sunday). For example, enter *SET COLL NEXTDOCTIME WKDAY (1,5), HOUR (HOURLY)* to roll the DOC every hour on every Monday and Friday.

Note: DAY and WKDAY should not be entered together.

- HOUR (HOURLY) will cause the DOC to roll hourly, on the hour, on the specified days of the specified months. You can also enter a list of hours on which the DOC should roll. Enter up to 12 time values in HH:MM format based on a 24-hour clock. For example *SET COLL NEXTDOCTIME MONTH(1,6), HOUR (00:00,12:00,17:30)* to roll the DOC at midnight, noon, and 5:30PM each day (the default) in January and June only.

OR

- Entering MINUTE <minutes> will cause the DOC to roll every <minutes> minutes, where <minutes> is a number from 1 to 60. For example, enter *SET COLL NEXTDOCTIME MINUTE (45)* to roll the DOC every 45 minutes.

Note: The MINUTE clause should not be entered with any of the other clauses.

NEXTDOCTRIGGER type

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
2.200			OFF	OFF ADT NEXTDOCTIME TIMEOFDAY NEXTDOCTIME	Yes

This defines the type of trigger for rolling databases of change (DOCs) in an open environment. Valid values are:

OFF	No automatic DOC rolling trigger is used. Only manual NEXTDOC COLL command will roll DOC. Default value.
ADT	Trigger is based on a local civil time, as indicated by NEXTDOCTIME, in the audit trail.
TIMEOFDAY	Trigger is based on the local civil time, as indicated by NEXTDOCTIME, of the system clock.

HP NonStop Shadowbase Command Definitions

Collector Command Descriptions

PRI number

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
1.000			None	1	199	No

Is the priority at which the Collector runs. The number can be from 1 to 199. If this parameter is omitted, the default is a priority of 20 less than the priority of AUDMON.

PROCESS [\system.] \$coll_name

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
1.000		None		Valid process name (include NODE)	No

This required parameter is the process name of the Collector on start-up.

PROGRAM [\system.\$volume.subvolume] filename

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
1.000	5.002	AUDCOLLN		Valid program file name	No

Is the name of the Collector object file. As of version 5.002, AUDCOLLN will now be used by default as the program file name, as opposed to AUDCOLL which was the default previously. Unless otherwise specified, the volume and subvolume name used will be the same as the location of the object file for AUDMON. Use AUDCOLL for Collectors processing TMF audit trails using ARLIB and AUDCOLLN for Collectors reading non-TMF audit trails files using ARLIB2.

PULSECLOCKADJ microseconds

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.990			0	-2147483647	2147483647	Yes

It is possible to configure HP Shadowbase such that the AUDMON runs on a different HP NonStop node than a Collector process. In the event that there is a discrepancy between the system clocks between the nodes, the PULSECLOCKADJ parameter can be used to adjust the timestamps recorded by a Collector for its pulse event processing. The adjustment (positive or negative) value indicated by the PULSECLOCKADJ parameter argument will be added to each of the pulse timestamps the Collector is responsible for setting.

When PULSEAUTOADJ is enabled this parameter is configured automatically.

PULSECLOCKADJ is specified in microseconds (i.e., i.e., 1/1,000,000th second intervals). The default value is 0, meaning no time adjustments are made.

The valid range is -2147483647 to 2147483647, i.e., i.e., about 2147 seconds in either direction. Note that a plus sign should not be specified for positive numbers. This parameter can be altered at any time.

RESERVEDBUFFERS number

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
2.000	2.200	2	1	128	No

Is the number of fixed 4K (30K if TURBOMODE is ON) memory buffers to reserve for assembling messages for each Consumer process. The number must be at least 1. The default is 2. The maximum value is 128.

The HP Shadowbase Collector internally computes an appropriate value for the number of buffers it will preallocate and fill with audit data (e.g., similar to ((MAXCONS * MAXCONSWRITES) + 1). The RESERVEDBUFFERS value is added to this computed value. Increasing this value allows the Collector to preassemble more audit data, at the expense of additional memory consumption.

RESTARTFILE [\system.\$volume.subvolume] restart_fname

Initial Version	Changed Version	Values Default	Value Specifications	Alter
1.000	3.910	None	Valid file name	No

This parameter identifies the name of the file, which provides the restart position for audit trail reading. When starting up, the Collector will read the restart file to determine where it will start reading in the audit trail stream. If this file exists and is not empty, any ADTSTART... parameters are ignored. If the Collector is to consider the starting parameters, this file must not exist (user must purge manually). This file name must be unique for each Collector. Under some restart conditions, an ADTSCRATCHVOL may need to be configured. This is a required parameter. See the [*HP NonStop Shadowbase Operations Manual*](#) for more details.

STATS { ON }
 { OFF }

Initial	Changed
---------	---------

HP NonStop Shadowbase Command Definitions

Collector Command Descriptions

Version	Version	Values	Default	Minimum	Maximum	Alter
2.000			ON	OFF	ON	Yes

This specifies whether resource usage and system performance statistics are to be gathered for later display with the STATS COLL command. The default is ON. See STATS COLL command for more information.

TRACE level_number

Initial	Changed	Values	Default	Minimum	Maximum	Alter
Version	Version					
2.000			0 disable	0	3	Yes

Disables or sets the trace level for AUDCOM and AUDMON event tracing. Level_number specifies the level of detail supplied in the trace. 0 through 3 are valid level_numbers. The default is 0, which disables tracing. A setting of 1 dumps most function names as they are called, 2 dumps additional function names, and detail for certain functions. A setting of 3 dumps detail on additional functions, including COLL/CONS ipc message content, and buffers for certain events.

Note: Tracing generates a lot of additional overhead, and will significantly affect performance. Tracing should never be enabled except under direction from HP Shadowbase Support.

TRACEFILE filename

Initial	Changed	Values	Default	Value	Specifications	Alter
Version	Version					
2.000			None	Valid file name	Include NODE	Yes

When tracing is enabled, this identifies the file name where the results are to be output. The filename can be fully qualified with volume and subvolume names. The file can be an edit-type disk file, spooler file or the home terminal. If writing to a disk file and you anticipate a lot of trace output, pre-creating the disk file with larger extent sizes than the product will create is recommended. The product creates the disk file with extents (14 pages, 28 pages, maxextents 559). If the TRACEFILE becomes full, HP Shadowbase will continue to run, but will not write anymore trace output.

TURBOMODE { ON }
 { OFF }

Initial	Changed	Values	Default	Minimum	Maximum	Alter
Version	Version					
2.300			OFF	OFF	ON	No

When set to ON, the Collector will block multiple events (e.g., I/O operations) into each message before sending that message to the Consumer; otherwise, the IPMBLOCKING parameter determines if event blocking is used. This may enhance performance.

When TURBOMODE is ON, the Collector waits for a message buffer to fill, TURBOWAITTIME to pass by, or TURBOMAXEVENTS to be processed, and then sends the message to a Consumer. It forces blocking. When it is off and IPMBLOCKING is OFF, a single event is sent at a time to a Consumer (see the IPMBLOCKING Consumer parameter). This parameter can be used for configurations that communicate over Expand and over TCP/IP. The default value is OFF. It must be set to OFF if using extended Consumers.

Note: When TURBOMODE IS ON, the Consumer parameter IPMBLOCKING is disregarded (all messages are blocked).

TURBOWAITTIME units (seconds or hundredths of seconds)

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
2.300		30	1	300	Yes

Determines how long to wait before sending a message block to the Consumer (see the TURBOMODE parameter as well).

Units represent whole seconds if the FASTSAMPLE parameter is set to OFF or hundredths of seconds if it is set to ON. Minimum value is 1, maximum is 300, and default is 30.

SHOW COLL Command

The SHOW COLL command displays the current values set for the Collector during the current AUDCOM session. The syntax is:

```
SHOW [ / OUT list_file / ] [ COLL ]
```

OUT list_file

This directs listing the output to a named file. It can be a disk file, spooler location, or process such as \$ZHOME. If omitted, listing output goes to the AUDCOM list file; this is typically the home terminal.

HP NonStop Shadowbase Command Definitions

Collector Command Descriptions

An example of the results of doing an SHOW COLL command is shown below:

```
COLL OBJECT SETTINGS:
  ADTAUTOSTOP OFF
  ADTAUXMASK 1111111111111111
  ADTEOFDELAY 0
  ADTSAMPLEDELAY 10
  ADTSCRATCHVOL ?
  ADTSCRATCHXVOL01 ?
  ADTSCRATCHXVOL02 ?
  ADTSCRATCHXVOL03 ?
  ADTSCRATCHXVOL04 ?
  ADTSCRATCHXVOL05 ?
  ADTSCRATCHXVOL06 ?
  ADTSCRATCHXVOL07 ?
  ADTSCRATCHXVOL08 ?
  ADTSCRATCHXVOL09 ?
  ADTSCRATCHXVOL10 ?
  ADTSCRATCHXVOL11 ?
  ADTSCRATCHXVOL12 ?
  ADTSCRATCHXVOL13 ?
  ADTSCRATCHXVOL14 ?
  ADTSCRATCHXVOL15 ?
  ADTSTARTEOF ON
  ADTSTARTNAME ?
  ADTSTARTRBA ?
  ADTSTARTSEQLO ?
  ADTSTARTTIME ?
  ADTSTOPEOF OFF
  ADTSTOPNAME ?
  ADTSTOPRBA ?
  ADTSTOPSEQHI ?
  ADTSTOPTIME ?
  ADTTHROTTLEDELAY 0
  ADTTHROTTLELIMIT 1
  ADTXEOFREPEATS 3
  ADTXSAMPLEDELAY 500
  ARCHIVEACCESS OFF
  ARMAXIGNORECNT 1000
  ARRETURNNDCRECS OFF
  BACKUPCPU ?
  CHKPTDELAY 500
  CHKPTTIME 300
  CHKPTWARNRATE 900
  CHKPTWARNTDIFF 8100
  CHKPTWARNTDIFFB 8100
  CPU 1
  CPULIST ( ? )
  DEBUG OFF
  EXPANDRECOVERY ON
  EXTENDEDSTATS ALL
  FAILMAX 2
  FAILRETRYDELAY 60
  FAILSPAN 900
  FASTSAMPLE OFF
  FASTTRACK ON
  GETRECADDRERROK OFF
  KEYEDCACHEDEPTH 0
```


HP NonStop Shadowbase Command Definitions

Collector Command Descriptions

```
KEYEDONLY OFF
LABELCACHEDEPTH 10
LATENCYTHRESHOLD 0
LATENCYWARNRATE 3600
LOGAGECLEAR ON
LOGAGECLEARBID OFF
MAXCONS 5
MAXCONSWRITES 15
MAXQMGR 1
MEASURE OFF
NEXTDOCTIME MONTH (ALL) , DAY (DAILY) , HOUR (00:00)
NEXTDOCTRIGGER OFF
PRI 99
PROCESS \H2.$KUCL1
PROGRAM \H2.$KGU.KGU5000E.AUDCOLLN
PULSECLOCKADJ 0
RESERVEDBUFFERS 10
RESTARTFILE \H2.$KGU.CONFIGS.RSTKGU
STATS ON
TRACE OFF
TRACEFILE ?
TURBOMODE ON
TURBOWAITTIME 30
```

START COLL Command

The START COLL command enables execution of a Collector. This command causes the Collector to prepare to communicate with the Consumers, etc. This command must be followed by a RUN command for the Collector to actually begin execution. Enter this command after all Consumers are started. The syntax is:

```
START    [COLL]      [<audmon-name>.] {coll_name }
                               { * }
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

coll_name

is the name of the Collector to be started.

*

This indicates to start all Collectors.

STATS COLL Command

The STATS COLL command displays resource usage and system performance statistics for a Collector. In order to gather statistics, the COLL STATS parameter must be set to ON.

The syntax is:

```
STATS [/OUT <listfile>/] {[COLL] [<audmon-name>.]<collname>}  
                                { *      }  
                                [,DETAIL]  
                                [,LAG]  
                                [,SUPPRESS]  
                                [,RESET]  
                                [,INTERVAL <num>  
                                    {HRS}  
                                    {MINS}  
                                    {SECS}]
```

OUT list_file

This directs listing the output to a named file. If omitted, listing output goes to the AUDCOM list file; this is typically the home terminal.

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

coll_name

Is the name of the Collector.

*

This indicates to include all Collectors.

RESET

Sets counters used for the measurement to zero.

INTERVAL

Is a time interval between statistics displays. When specified, you must use the break key to end the command.

Notes: The INTERVAL option is not available for TCP/IP connections.

The maximum value for the end-of-audit counter displayed on the STATS COLL output is 9999999 after which it will roll back to 0.

The maximum value prior to v4.010B was 32767.

HP NonStop Shadowbase Command Definitions

Collector Command Descriptions

The STAT COLL command will now show the HP NonStop Shadowbase product T-Number, and release version.

Example of the STATS COLL command:

```
SHADOWBASE - T1122 - V6100J06 - (08AUG14)
COLL STATS AT 2014-08-26:10:05:27 :

NAME: COLL-PCOLL          PROCESS: \GRAVIC1.$PCOLL   SINCE: 2014-08-26:10:04:34
                           AUDMON: \GRAVIC1.$PAUDM   DURATION: 00:00:52.393

LATENCY WARNING STATUS: DISABLED
ETS: 08-26 10:05:21.564  DIFF (CUR): 00:00:00.000
LTS: 08-26 10:05:21.564  LAG (CUR): 00:00:00.000
AUDITTRAIL PROCESSING SUMMARY:
SEQ: AA000372  RBA: 0001772863641  EOF(S): 0000015  WAIT: 00:00:50.798
RESTART INFO (MAT POSITION):
      SEQ          RBA TIME          LAG (CUR)      DIFF LTS
-----
000372    1772863640 08-26 10:05:21 00:00:05.642 00:00:00.000
AUDITTRAIL INFO (MAT):
      SEQ          EOF LAST MODIFIED
-----
000372    1772867584 08-26 10:05:21

RECORD INFO:          NUM READ          NUM USED          % USED
BEGINS(logical)         0              0              0.0
COMMITTS                 0              0              0.0
ABORTS                   0              0              0.0
NETWORK COMMITTS        0              0              0.0
NETWORK ABORTS          0              0              0.0
ALTERS                   0              0              0.0
CREATES                  0              0              0.0
PURGES                   0              0              0.0
PURGEDATAS              0              0              0.0
INSERTS                   0              0              0.0
DELETES                   0              0              0.0
UPDATES                   0              0              0.0
AUX POINTERS             2              2             100.0
OTHERS                   0              0              0.0
-----
TOTALS                    2              2             100.0

TRANSACTION TRACKING INFO:
CUR CNT:      0  MAX CNT:      0  NUM ABORTING:      0  ABORT TIMER: OFF
RESERVED BUFFER INFO:
NUM ALLOC:    84  CUR USED:      0  MAX USED:      4
PRESCREEN SUBVOLUMES: QAOPEN
NUM HITS:      0  NUM MISSES:      0  HIT%:      0.0
FILE NAME SEARCH LIST INFO:
NUM INCLUDED FILES ON LIST:      0  NUM HITS:      0  HIT%:      0.0
NUM EXCLUDED FILES ON LIST:      0  NUM HITS:      0  HIT%:      0.0
CONSUMER MESSAGE INFO (EVENT DATA):
      SENDS  MIN SIZE  MAX SIZE  AVG SIZE  MIN OPS  MAX OPS  AVG OPS  BUSY
-----
          4         42         42         42          0          0          0        0
      BYTES SENT  NUM WRTRDS  WRTRD TIME  AVG RESP
-----
        168          4  00:00:00.006    0.002
```

Example of the STATS COLL,DETAIL command:

```
SHADOWBASE - T1122 - V6100J06 - (08AUG14)
COLL STATS AT 2014-08-26:10:05:38 :

NAME: COLL-PCOLL          PROCESS: \GRAVIC1.$PCOLL   SINCE: 2014-08-26:10:04:34
                           AUDMON: \GRAVIC1.$PAUDM   DURATION: 00:01:03.785
LATENCY WARNING STATUS: DISABLED
```

HP NonStop Shadowbase Command Definitions

Collector Command Descriptions

```

ETS: 08-26 10:05:31.592 DIFF (CUR): 00:00:00.000
LTS: 08-26 10:05:31.592 LAG (CUR): 00:00:00.000
AUDITTRAIL PROCESSING SUMMARY:
SEQ: AA000372 RBA: 0001772863829 EOF(S): 0000017 WAIT: 00:01:02.189
RESTART INFO (MAT POSITION):
      SEQ          RBA TIME          LAG (CUR)      DIFF LTS
-----
000372    1772863828 08-26 10:05:31 00:00:07.006 00:00:00.000
AUDITTRAIL INFO (MAT):
      SEQ          EOF LAST MODIFIED
-----
000372    1772867584 08-26 10:05:31
RECORD INFO:      NUM READ      NUM USED      % USED
BEGINS(logical)      0          0          0.0
COMMITTS              0          0          0.0
ABORTS                0          0          0.0
NETWORK COMMITTS     0          0          0.0
NETWORK ABORTS       0          0          0.0
ALTERS                0          0          0.0
CREATES              0          0          0.0
PURGES               0          0          0.0
PURGEDATAS           0          0          0.0
INSERTS              0          0          0.0
DELETES              0          0          0.0
UPDATES              0          0          0.0
AUX POINTERS         3          3        100.0
OTHERS                0          0          0.0
-----
TOTALS              3          3        100.0
TRANSACTION TRACKING INFO:
CUR CNT:      0  MAX CNT:      0  NUM ABORTING:      0  ABORT TIMER: OFF
RESERVED BUFFER INFO:
NUM ALLOC:    84  CUR USED:      0  MAX USED:      4
PRESCREEN SUBVOLUMES: QAOPEN
NUM HITS:      0  NUM MISSES:      0  HIT%:      0.0
FILE NAME SEARCH LIST INFO:
NUM INCLUDED FILES ON LIST:      0  NUM HITS:      0  HIT%:      0.0
NUM EXCLUDED FILES ON LIST:      0  NUM HITS:      0  HIT%:      0.0
CONSUMER MESSAGE INFO (EVENT DATA):
      SENDS  MIN SIZE  MAX SIZE  AVG SIZE  MIN OPS  MAX OPS  AVG OPS  BUSY
-----
      4      42      42      42      0      0      0      0
      BYTES SENT  NUM WRTRDS  WRTRD TIME  AVG RESP
-----
      168      4  00:00:00.006  0.002
CONSUMER MESSAGE PENDING INFO:
CONSNAME      TRANS BUSY  MSG QUE  MSG BUSY  ETS DIFF  LTS LAG
-----
CONS-OPN-PCON1      0      0      0
CONS-OPN-PCON2      0      0      0
CONS-OPN-PCON3      0      0      0
CONS-OPN-PCON4      0      0      0
CONSUMER MESSAGE RESPONSE INFO:
CONSNAME      BYTES SENT  NUM WRTRDS  WRTRD TIME  AVG RESP  RLQ
-----
CONS-OPN-PCON1      42      1  00:00:00.001  0.002  N
CONS-OPN-PCON2      42      1  00:00:00.001  0.002  N
CONS-OPN-PCON3      42      1  00:00:00.001  0.002  N
CONS-OPN-PCON4      42      1  00:00:00.001  0.002  N

```

COLL STATS AT shows the time at which the STATS COLL command was invoked.

UNDOMODE indicates STATS performed during UNDO processing (v5.001).

NAME shows the name of the Collector.

PROCESS shows the process name of the Collector.

SINCE shows the time the statistics began accumulating.

AUDMON shows the AUDMON process controlling the Collector.

DURATION shows the time duration for the statistics. Either from the initial startup of the COLL or from the last RESET.

Notes:

- If the lag is greater than 100 hours, it will be displayed as ">100 HOURS".
- If the Collector/Consumer is caught up, zeros will be shown.
- If there are no messages busy or queued for a Consumer, the lag times will be blank.
- If the Collector has been suspended via AUDCOM, the lag times will show "NOT READING".
- If a Consumer is not in a state to receive messages (e.g., it has been suspended via AUDCOM), the lag times will show "NOT PROC." (meaning not processing).
- The following is an example using the DETAIL option (the new information is in bold).
- The timestamps, and latencies output are computed and displayed in <hours>:<minutes>:<seconds>. <milliseconds> format. It should be noted that many of these timestamps are generated using audit trail event timestamps, which are notoriously inexact. Deviations of a few seconds (to as much as a minute) of 'inexact drift' can occur. For busy systems, the audit trail timestamps will generally be more accurate than they are for less-busy systems.
- Due to the audit trail event timestamp inaccuracies described above, lag statistics may show far greater latency than what is actually occurring.

LATENCY WARNING STATUS – This section indicates the current status. Possible values are: ENABLED, DISABLED, BEHIND or CAUGHT UP. These last two states will only appear if the LATENCYTHRESHOLD parameter is set greater than 0. In this case, it also indicates the time it entered this state.

ETS shows the timestamp of the oldest unacknowledged event sent to the Consumer. The LTS (latency, or latest, timestamp) Shows the timestamp of last event read from the audit trail.

ETS LAG (CUR) shows what the lag time is from the oldest event being tracked to the current wall clock time. In this context, tracked events are the events that have been read from audit, and are either queued to or have been sent to a Consumer, but have not yet been ACK'd by that Consumer. It is not the same thing as the RESTARTFILE lag time (see below), however it is possible that the oldest event being tracked by the Collector is the oldest event for a current transaction (a transaction that the Collector has not seen a commit or abort for).

LTS shows the timestamp of the last event read from the audit trail.

LTS LAG (CUR) shows what the lag time is from the Collector's current audit trail read position (where the Collector is currently reading from) to the current wall clock time (this is the current *replication latency*). This lag time shows how far behind the Collector is in audit trail processing. Note that even when the Collector is caught up, the LTS lag may show that the Collector is behind by up to ADTSAMPLEDELAY seconds (see below).

To see the Consumer LAG details, enter `STATS COLL <collname>, DETAIL`. In addition to the lag times, the number of active transactions being tracked by that Consumer, the number of messages queued to be sent (i.e., not yet sent via a Guardian interprocess message), and the number of messages busy (i.e., the current number of messages that have been sent via a Guardian interprocess message but have not yet been replied to) are shown for each Consumer. Messages are queued to be sent to the Consumer while they are filling with events, or when there are MAXCONSWRITES messages already outstanding to the Consumer.

Aside from audit trail timestamp inaccuracies, there are several reasons `COLL STATS` may incorrectly report latency when the Collector is actually caught up they are listed below:

- The ADTSAMPLEDELAY parameter controls how long the Collector waits after hitting EOF on the audit trail before it goes and checks for additional audit data. If the `STATS` command is issued at this time, the lag (latency) will be increasing however the Collector is not “behind” – it is waiting for the ADTSAMPLEDELAY interval to expire before it goes and checks for more data.
- The audit trail disk processes only flush the audit data to disk periodically, and the HP ARLIB audit reading routines only return audit data after it has been flushed to disk. This means that the disk processes and TMF subsystem may be preventing HP Shadowbase from reading the audit events, thus contributing to lag (latency).
- The Collector's TURBOWAITTIME parameter controls how long the Collector waits for a buffer to fill before sending it to the Consumer. In essence, this parameter “holds up” the audit events from being sent while the buffer fills. This time can add to the lag times.

Hence, lag values within the ADTSAMPLEDELAY, TURBOWAITTIME, or TMF flush intervals are not indicative of HP Shadowbase being “behind”, rather they show the direct effect these parameters have on overall replication latency.

AUDITTRAIL PROCESSING SUMMARY – This section of the output displays current audit trail position information for any audit trails being read.

SEQ shows the Sequence number of the audit trail currently being processed.

RBA shows the current position within the audit trail expressed as the relative byte address.

EOF shows the number of times it encountered the end of the audit trail file.

WAIT shows the duration of time that the COLL is waiting for audit to show up (sum of intervals over time from the time the Collector hit EOF on the MAT audit trail until the next event shows up). This is influenced by the delay parameters ADTSAMPLEDELAY or ADTEOFDELAY, as well as the length of time that it takes for more audit to arrive and for arlib to read/return it to the Collector. More specifically, when the Collector hits eof on the audit trail, the timer duration starts and, based on the ADTSAMPLEDELAY or ADTEOFDELAY parameters, the Collector will then wait either that amount of time minimum before checking the audit trail again (ADTEOFDELAY) or up to that amount of time (ADTSAMPLEDELAY) before attempting to read audit again. The time from when the timer starts until the next audit trail event arrives and is returned to the Collector by arlib is the duration added to the “WAIT:” statistic. If one does a STATS RESET and there is no audited I/O activity on the system, then the WAIT duration should be close to the COLL’s duration.

RESTART INFO (MAT POSITION) – This section of the output is to show the RESTARTFILE checkpoint information (i.e., i.e., the point in the TMF audit trail where the Collector will start reading from if it has to restart).

SEQ shows the current audit trail Sequence number saved in the RESTARTFILE.

RBA shows the restart position within the audit trail expressed as the relative byte address.

TIME shows the restart point timestamp.

LAG (CUR) shows the difference between current time and the restart point timestamp. When HP Shadowbase is caught up, and is not receiving any audit (none getting generated) the restart point timestamp reflects the last audit event read.

DIFF LTS shows the difference between the most recent audit trail event read and the restart position timestamp. If the difference is greater than 100 hours, it will be displayed as “>100 HOURS”. (A “*” is displayed next to the “DIFF LTS” field if the restart point is lagging behind the threshold defined for the COLL CHKPTWARNDIFF parameter.)

BI-DIRECTIONAL RESTART INFO (MAT POSITION) – This section of the output is to show the bi-directional RESTARTFILE checkpoint

information. **This section is only displayed for bi-directional replication environments.**

SEQ shows the current audit trail Sequence number saved in the bi-directional RESTARTFILE.

RBA shows the bi-directional restart position within the audit trail expressed as the relative byte address.

TIME shows the bi-directional restart point timestamp.

LAG (CUR) shows the difference between current time and the restart point timestamp. When HP Shadowbase is caught up, and is not receiving any audit (none getting generated) the restart point timestamp reflects the last audit event read.

DIFF RESTART shows the difference between the most recent audit trail event read and the restart position timestamp. If the difference is greater than 100 hours, it will be displayed as ">100 HOURS". (A "*" is displayed next to the "DIFF LTS" field if the restart point is lagging behind the threshold defined for the COLL CHKPTWARNDIFF parameter.)

BID PT shows counters for the synchronization points that the COLL maintains as a part of its internal algorithms. The first number is the current counter and the second number is the maximum number that has occurred over the STATS duration. If the current counter hits 250, a warning message will be output to EMS every ten minutes until it goes below 250. (250 synchronization points represents 20.8 hours normally. This could indicate a "hung" TMF transaction in the system.)

AUDITTRAIL INFO – This section displays the sequence number, EOF, and last modified timestamp of unprocessed audit trails. Up to 40 may be displayed.

RECORD INFO – This section shows information pertaining to the number of BEGIN, COMMIT, ABORT, NETWORK COMMIT, NETWORK ABORT, CREATE, PURGE, PURGEDATA, INSERT, DELETE, UPDATE, AUX POINTERS and OTHER audit trail records that are being processed.

NUM READ shows the number of the corresponding type of audit trail records that have been read in from the audit trail by HP Shadowbase.

NUM USED shows the number of the corresponding type of audit trail records that have been sent to the Consumer or Queue Manager.

% USED shows the percentage of the corresponding type of audit trail record that has been sent to the Consumer or Queue Manager.

TRANSACTION TRACKING INFO – This section shows transaction tracking statistics.

CUR CNT shows the current number of open transactions for which the Collector is gathering audit data.

MAX CNT shows the highest number of current transactions that has been reached during the current STATS duration.

NUM ABORTING shows the number of aborted transactions currently being tracked.

ABORT TIMER shows whether the ABORT TIMER is on or off for the aborted transactions currently being tracked. (The ABORT TIMER helps resolve certain specific TMF recovery scenarios such as when a TMF failure/restart has occurred).

NUM PEER TRANS NO AUDIT shows the number of the peer-CONS's pre-started transactions that have not yet yielded audit events.

RESERVED BUFFER INFO – This section displays reserved buffer statistics. These buffers are allocated and used to pre-read the audit trail data in preparation for sending them to the Consumer(s). If the Collector is not "caught up" (i.e., i.e., the number of EOFs is not increasing), one can attain higher throughput if there are reserved buffers in use (The reserved buffers are ready and waiting for the Consumer(s) to be available to take their contents).

NUM ALLOC shows the number of reserved buffers allocated.

CUR USED shows the number of reserved buffers currently in use.

MAX USED shows the maximum number of reserved buffers that have been in use since the STATS started to be gathered.

BI-DIRECTIONAL PEER CONSUMER FAILURE INFO – This section displays the timestamp of the last peer consumer failure and the total number of times it has failed. **This section is only displayed for bi-directional environments and only when the peer consumer has failed at least once.**

VOLUME/FILE RECOVERY INFO – This section displays information about any volume or file recovery that occurred for this collector. It shows the number of times recovery happened as well as the timestamp and audit trail location of the first and last recovery events. **This section is only displayed after the first time volume or file recovery occurs for the collector.**

PRESCREEN SUBVOLUMES – The Collector will build a list of up to 8 distinct subvolume names (not including the volume name, like \$DATA1) from the SOURCEFILE parameter for all of your DBS objects. This list will be checked first for a match against the file name for an incoming audit trail event. If a match doesn't occur, the Collector will discard the event immediately and continue with the next event in the audit trail (this "prescreening" is occurring sooner in the selection cycle than in the past). This approach will optimize the Collector's cpu usage for environments where there is lots of activity for many different subvolumes on a system and the related Collector is not selecting these subvolumes for replication.

For the second part, called *Filename Prescreening* (recorded under the heading

'FILE NAME SEARCH LIST INFO'), as well as for environments where

Subvolume Prescreening cannot be used (e.g. because there are too many distinct subvolumes being replicated or where wildcards are in use), the Collector now tracks all files appearing in an audit trail (that either “pass” the prescreened subvolumes as described above or all files appearing in the audit trail otherwise in a searchable “tree” of file names. The first time a file name is encountered in the audit trail, the Collector will check the list of DBS SOURCEFILE parameters to determine if the file is to be replicated and to which Consumers the events should be sent. It then adds the file name to the Filename Prescreening tree to be searched against as subsequent audit trail events show up (with a state as to whether the file is being replicated or not).

QMGR AND CONSUMER MESSAGE INFO (EVENT DATA) – This section (also called CONSUMER MESSAGE INFO when no QMGR is configured) displays information about interprocess messages sent to the Consumer or Queue Manager.

SENDS shows the number of messages sent to a Consumer or Queue Manager.

MIN SIZE shows the size of the smallest message sent to a Consumer or Queue Manager since the STATS started to be gathered.

MAX SIZE shows the size of the largest message sent to a Consumer or Queue Manager since the STATS started to be gathered.

AVG SIZE shows the average size of all messages sent to the Consumer and Queue Manager since the STATS started to be gathered. If the Consumer(s) are not currently at audit trail EOF, this number should approach 30000, the largest size a message can be. (If it is significantly less than 30000, the message blocks are not being fully filled before being sent. Turn TURBOMODE ON, and consider increasing the value of the TURBOMAXEVENTS parameter, or the TURBOWAITTIME parameter to fill the messages more completely.)

MIN OPS shows the minimum number of operations sent to a Consumer or Queue Manager in a message since the STATS started to be gathered.

MAX OPS shows the maximum number of operations sent to a Consumer or Queue Manager in a message since the STATS started to be gathered.

AVG OPS shows the average number of operations sent to a Consumer or Queue Manager in a message since the STATS started to be gathered.

BUSY shows the count of unacknowledged messages sent to the Consumer or Queue Manager (s). If “BUSY” is a large number (approaching MAXCONSWRITES multiplied by the number of active Consumers this Collector is connected to), the Collector is gated, waiting on these Consumer(s) to process the data they have.

BYTES SENT shows the number of inter-process message bytes sent to CONS and QMGR processes for the represented duration.

NUM WRTRDS number of completed inter-process messages sent to CONS and QMGR processes and responded to (i.e., i.e., the ACK received). Note that this does not necessarily indicate that this number of messages that have been fully processed. This is because when RESOLVELOCKSQ is enabled, messages become completed before they have been fully processed (i.e., i.e., the CONS responds almost immediately after the message has been received).

WRTRD TIME shows the total amount of time for all messages sent to CONS and QMGR processes and responded to. The duration for a message is measured from just prior to the message being sent until just after the response (ACK) has been received.

AVG RESP shows the average response time for messages computed by dividing the NUM WRTRDS into WRTRD TIME.

Notes:

- The Collector will only send the MAXCONSWRITES specified number of messages to a specific Consumer before waiting for a reply. Only after receiving a reply will it begin sending another.

DOC ROLL STATUS INFO (NEXT/CURRENT) – This section is **only displayed after a RUN command is issued and a DOC roll schedule is input or a NEXTDOC command is issued.**

SCHEDULE shows the type of roll schedule in use:

ADT	–	Audit trail based.
TOD	–	Time of day based.
CMD	–	User command based.

If ADT or TOD shows, the time of the current or next rollover also displays. If CMD displays and a DOC roll is in progress, the time appears. Otherwise, if no DOC roll is in progress, the word INTERACTIVE is displayed.

LAST AUDITTRAIL REC shows the timestamp of the last audit trail record processed before the DOC roll began. As the Collector processes audit trail records, this column contains the current position in the audit trail. If no audit trail records were processed, "NONE READ" appears.

START shows the time the DOC roll started if it is currently in progress, otherwise it is blank.

DUR shows the number of minutes the current DOC roll has been in progress. If no roll is in progress, DUR will appear blank.

STATE shows one of the following values:

ROLLING	–	roll in progress
WAIT CMD	–	anticipating NEXTDOC command
WAIT ADT	–	waiting for the audit trail to reach

SCHEDULE

WAIT TOD	–	waiting for system time to reach
----------	---	----------------------------------

SCHEDULE

DOC ROLL STATUS INFO (PREVIOUS) – This section is **only displayed after the first DOC roll completes.**

SCHEDULE shows the scheduled time of the last completed roll preceded by the type of roll schedule used:

ADT	–	Audit trail based.
TOD	–	Time of day based.
CMD	–	User command based.

LAST AUDITTRAIL REC shows the timestamp of the last audit trail record processed before the DOC roll began. If no audit trail records were processed, “NONE READ” will appear.

START shows the time the DOC roll started.

STOP shows the time the DOC roll completed.

DUR shows the time the DOC roll took, in minutes.

MIN shows the minimum DOC roll duration since HP Shadowbase started.

MAX shows the maximum DOC roll duration since HP Shadowbase started.

QMGR AND CONSUMER MESSAGE PENDING INFO – This section displays information relating the outstanding messages to the Consumer. **This section is only displayed when specifying ,DETAIL in the STATS COLL command.**

CONSNAME shows the Consumer or Queue Manager object name associated with the STATS.

TRANS BUSY shows the number of active transactions associated with object.

MSG QUEUE

MSG BUSY

ETS LAG

LTS LAG

QMGR AND CONSUMER MESSAGE RESPONSE INFO – This section displays information relating to messages acknowledged by the Consumer. **This section is only displayed when specifying ,DETAIL in the STATS COLL command.**

CONSNAME shows the Consumer or Queue Manager object name associated with the STATS.

BYTES SENT shows the total number of inter-process message bytes sent to the related CONS or QMGR for the reported duration.

NUM WRTRDS shows the number of messages sent and responded to (i.e., i.e., the ACK was received) by the related CONS or QMGR for the reported duration.

WRTRD TIME shows the total time spent for message handling for the reported duration (from the writeread until immediately after the CONS’s or QMGR’s ACK response is received).

AVG RESP shows the average message response time for the reported duration computed by dividing the NUM WRTRDS into the WRTRD TIME.

RLQ shows “Y” if the CONS RESOLVELOCKSQ parameter is set to ON. Otherwise, it shows “N”. Note that when RESOLVELOCKSQ is ON, a CONS reply message does not indicate that it has been processed end-to-

end. It only means that the CONS has accepted it, and sent an “early ACK” response back to the Collector. When RESOLVELOCKSQ is OFF, a CONS reply indicates that the message has been fully processed.

The LAG option has been added to the STATS COLL command to obtain Collector and Consumer lag information. The Consumer information will be displayed if the DETAIL option is entered. If the SUPPRESS option is entered, Consumer processes that are determined to be caught up will not be displayed.

Information for the earliest event timestamp (ETS) and the latest event timestamp (LTS) read or being processed are displayed. The DIFF is the difference between current time and the audit trail event timestamp. Note that if the Collector is at end-of-file on the MAT audit trail, “*LAST REC*” is displayed. If there is no backlog of events for a Consumer, “*COLL LAG*” is displayed for the Consumer DIFF output.

The following is an example of the LAG output with the DETAIL option requested.

```
+stats coll COLL-WGHLX, lag, detail

SHADOWBASE - V5002DH06 - (22AUG13)
COLL LAG STATS AT 2013-10-17:15:24:32 :

=====
COLL: COLL-WGHLX          PROCESS: \H2.$WGHLX          AT: 2013-10-17 15:24:33
LATENCY WARNING STATUS: DISABLED
POS: BB000106/0003023651612  POS: BB000106/0003023651612
ETS: 10-17 15:24:32.961      LTS: 10-17 15:24:32.961
DIFF: 000:00:00.044          LAG: 000:00:00.044
CONS: CONS-OPN-WGHCX        PROCESS: \H2.$WGHCX
DIFF: 000:00:00.000          LAG: 000:00:00.000
=====
+
```

STATUS COLL Command

The STATUS COLL command shows the status of a Collector and its associated Consumer(s). If an open database of change (DOC) file is in the process of rolling, this also displays.

The syntax is:

```
STATUS [ / OUT list_file / ] [COLL] [<audmon-name>.]{{coll_name}
                                         { *}}
                                         [, DETAIL]
```

OUT list_file

HP NonStop Shadowbase Command Definitions
Collector Command Descriptions

This directs listing the output to a named file. If omitted, listing output goes to the AUDCOM list file; this is typically the home terminal.

`audmon_name`

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

`coll_name`

Is the name of the Collector.

*

This indicates to include all Collectors.

These are the possible STATES for the Collector:

FAILED	All attempts at recovery failed.
IDLE	Collector added, but has not been started.
RECOVERY	An automatic recovery is scheduled for this Collector.
RUNNING	Collector started and processing has begun.
STARTED	Collector started via START command, but is not processing yet.
UNKNOWN	Collector did not respond within AUDMON's timeout period. AUDMON could not determine current state. Check EMS messages for more information on the STATE of the Collector.

Notes:

- The 'UNKNOWN' status most often happens when the COLL is stuck waiting on an ARLIB call, such as a restore. The COLL that issued the ARLIB call is unable to provide status until ARLIB returns control. When HP Shadowbase is reading along in the audit, if it hits EOF on the current trail, it talks to a TMFSERVE process to find the next trail to read. It then looks on disk in the active TMF subvols for the specified file, as well as a number of other places (like the ADTSCRATCH subvols). If found, the COLL just uses it. If the file is not found, HP Shadowbase rechecks with TMFSERVE to see that it is in the catalog, but has rolled off the system. The COLL will then log an EMS message that it is waiting on this trail before it calls ARLIB to get it restored. TMF will then log a tape mount request.
- Effective release v3.963, the STATUS COLL output was enhanced to show when a Collector is waiting on a particular audit trail that is not currently on disk in any of the TMF subvolumes or in a HP Shadowbase scratch subvolume.

HP NonStop Shadowbase Command Definitions

Collector Command Descriptions

- The UNDOMODE indicator signifies that the status command was executed during an UNDO processing sequence, effective release v5.001.
- The STATUS COLL command will now show the HP NonStop Shadowbase product T-Number, and release version.

An example of the results of doing an STATUS COLL command is shown below:

```
SHADOWBASE - T1122 - V6100J06 - (08AUG14)
COLL STATUS AT 2014-08-26:09:41:57 :
  AUDMON: \GRAVIC1.$PAUDM
```

COLLNAME	PROCESS	STATE	ADTSEQ	ADTRBA
COLL-PCOLL	\GRAVIC1.\$PCOLL	RUNNING	000372	1771927893
EMS	OPENED \$0			[ERROR=0]
RESTARTFILE	OPENED \GRAVIC1.\$QA.QAOPEN.RESTART			[ERROR=0]
TRACE	CLOSED			

An example of the results with the detail option is shown below:

```
SHADOWBASE - T1122 - V6100J06 - (08AUG14)
COLL STATUS AT 2014-08-26:09:51:21 :
  AUDMON: \GRAVIC1.$CONMN
```

COLLNAME	PROCESS	STATE	ADTSEQ	ADTRBA
COLL-CONCL	\GRAVIC1.\$CONCL	RUNNING	000372	1772305432
EMS	OPENED \$0			[ERROR=0]
RESTARTFILE	OPENED \GRAVIC1.\$QA.QAOPEN.RESTART			[ERROR=0]
TRACE	CLOSED			

CONSUMER STATE INFO:

CONSNAME	STATE	LAST SUSPENDUPD/COLL ADT READ	LAST RESUMEUPD
CONS-OPN-CCN01	RUNNING		
CONS-OPN-CCN02	RUNNING		
CONS-OPN-CCN03	RUNNING		

STOP COLL Command

The STOP COLL command stops a Collector. None of the Consumers that are associated with the Collector can be in a suspended state when issuing this command. The Consumers must be running or stopped. See the *[HP NonStop Shadowbase Operations Manual](#)* for more information on stopping Collectors. The syntax is:

```
STOP  [ COLL ]  [<audmon-name>.] { <coll_name> }
                                     { * }           [!]
```

audmon_name

HP NonStop Shadowbase Command Definitions Collector Command Descriptions

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

`coll_name`

Is the name of the Collector.

`*`

Indicates include all Collectors.

`!`

If the `!` (now) option is used, the `CONFIRMSHUTDOWN` parameter will not be considered, and the command will be run without additional confirmation.

Note: It's possible that a `CONS` may abend if one stops a `COLL`. It can happen if work is in progress in a `CONS` when someone stops a `COLL` if `RESOLVELOCKSQ` or `RESOLVELOCKS` or `RESOLVETRANS` is `ON` or the `CONS` is a client or server talking via `tcp/ip`.

Note: The Collector will refresh the restart file restart point prior to stopping (for any reason). `AUDMON` sends a "stop" message to the Collector during all `STOP COLL` command sequences. This also causes the Collector to refresh the restart point.

SUSPEND COLL Command

The `SUSPEND COLL` command suspends execution of a Collector. That is, the Collector will not read additional records from the audit trail file. However, it continues to complete anything that is in progress (e.g., messages to Consumers). You may want to use this command to suspend processing in order to free up CPU cycles needed by another process. The syntax is:

```
SUSPEND [ COLL ] [<audmon-name>.] {coll_name }  
                                { * }
```

`audmon_name`

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

`coll_name`

Is the name of the Collector.

*

This indicates to suspend all Collectors.

SUSPENDUPD COLL Command

The SUSPENDUPD COLL command suspends audit data processing by entering a specific token into the end of the audit trail; when that event arrives at the target Collector(s), all Consumers attached to them stop processing audit trail events until a RESUMEUPD command is entered. The syntax is:

```
SUSPENDUPD {[COLL] {[<audmon-name>.]<collname>}  
                {[<audmon-name>.*  
                [,SYSCALL  {( <TACL command> ) }  
                {<filename>}}  
                [,PASSTHRUOPEN [{ ( <command> ) }  
                {<shell script>}]}}
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

collname

Is the name of the Collector.

*

This indicates to suspendupd all Collectors.

To support the SUSPENDUPD command, a control file is necessary to place the trigger event in the audit trail. The CONS CONTROLFILE and CONTROLFILEEXT parameters should be set appropriately.

The SYSCALL option accepts either a filename containing TACL commands or a single TACL command within a set of parenthesis (). When a Consumer (or all Consumers specified in the SUSPENDUPD command) enter the SUSPUPD state, AUDMON will execute the SYSCALL file commands or single command string. This is useful command option to synchronize a set of Consumers, and then execute a task or set of tasks when they all have reached the same point in the audit trail processing sequence. If a filename is used, the fully qualified name, containing the node name, subvolume name, and filename is recommended. This will avoid any confusion about where the file resides

or which file should be executed should the AUDMON be on a different node.

Note: The IN and OUT files in the SYSCALL must be set to \$NULL unless a command input file and outfile are assigned. It is also very important that NOWAIT be used for any SYSCALL invoking AUDCOM. Otherwise, AUDMON will block. If this is accidentally done, locate the related running AUDCOM and stop it.

Example with SYSCALL:

```
SUSPENDUPD COLL *,SYSCALL (RUN $DATA1.SB4090.AUDCOM/NOWAIT,  
IN $NULL, OUT $NULL/ $SBMON; SHUTDOWN;EXIT)
```

PASSTHRUOPEN Generated Events

When PASSTHRUOPEN is specified, the SUSPENDUPD event and associated text is sent down to the target Open systems. If the text contains commas or spaces, it must be enclosed in parenthesis.

Notes: A user exit is required on the open side to intercept the event – otherwise, the target system will try to replicate the event and fail.

By default, the PASSTHRUOPEN feature is disabled – that is, the command event will not be passed through to the target. The functionality must be enabled by setting the SBALLOWPASSTHRUOPEN TACL parameter.

When PASSTHRUOPEN is specified, the SUSPENDUPD command and its corresponding RESUMEUPD command are embedded in the event stream as an SQL INSERT event into the SUSPUPD table, which has the following logical structure:

```
CREATE TABLE SUSPUPD (  
    TABLE_VERSION          INT          NOT NULL,  
    TRANSID                 LARGEINT     NOT NULL,  
    NUMBER_THREADS          SMALLINT     NOT NULL,  
    TYPE                    X(2)         NOT NULL,  
    LAST_SUSPENDUPD_TIME    PIC X(20)    NOT NULL,  
    LAST_RESUMEUPD_TIME     PIC X(20)    NOT NULL,  
    MAT_SEQNO               INT          NOT NULL,  
    MAT_RBA                 LARGEINT     NOT NULL,  
    CONSUMER_NAME           char(20)     NOT NULL,  
    ORIGINATOR_NAME         char(20)     NOT NULL,  
    SYSCALL_COMMAND         char(256)    NOT NULL,  
    SYSCALL_COMMAND_LEN     SMALLINT     NOT NULL,  
    PRIMARY KEY TRANSID  
)
```

The columns are defined as follows:

- TABLE_VERSION: The version of the logical table, currently set to 4092.
- TRANSID: The transaction id the command was issued under. The id is the same for all recipients of this command. This field allows the target side to group all of the suspend or resume events received down the various threads by the “unique” TRANSID number.
- NUMBER_THREADS: The number of HP Shadowbase Other Servers threads the command was issued to.
- TYPE: The type of command – SUSPENDUPD (“SU”) or RESUMEUPD (“RE”).
- LAST_SUSPENDUPD_TIME: The time the last SUSPENDUPD command was issued. The format is YYYYMMDDHHMMSSFFFFFFF.
- LAST_RESUMEUPD_TIME: The time the last RESUMEUPD command was issued. The format is YYYYMMDDHHMMSSFFFFFFF. If no RESUMEUPD command has been issued, will be filled with all 0s.
- MAT_SEQNO: The MAT file sequence number of the command event.
- MAT_RBA: The MAT relative byte address of the command event.
- CONSUMER_NAME: The attached Consumer or QMGR name.
- ORIGINATOR_NAME: The name of the process issuing the command.
- SYSCALL_COMMAND: The text from the PASSTHRU option.
- SYSCALL_COMMAND_LEN: The length of the text from the PASSTHRU option.

Consumer Command Descriptions

Consumer commands are associated with the definition and control of Consumer processes in a HP Shadowbase system. Consumers take in, or consume, messages sent by Collector processes about changes made to the source database. They then apply those changes to the target database or route them to an HP Shadowbase Other Servers. Commands are available to add and delete Consumers, start and stop Consumers, set and modify attributes, and display information and operating status. Issuing the SET CONS command, assigns attributes to specific Consumers.

The Consumer commands are described below:

ADD CONS Command

The ADD CONS command enters a Consumer description into the HP Shadowbase configuration. Enter the ADD command after issuing the

HP NonStop Shadowbase Command Definitions

Consumer Command Descriptions

appropriate SET commands for the Consumer and after adding the Collector. The syntax is:

```
ADD [ CONS ] [<audmon-name>.]<cons_name>
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

cons_name

is the logical name of the Consumer; the name can have from one to 16 alphanumeric or hyphen characters. It must start with a letter and be unique within the HP Shadowbase system.

ALTER CONS Command

The ALTER CONS command changes the attributes of a previously defined Consumer process.

In the SET CONS command description, there is a version box, as in the samples below, with a column titled 'Alter' which is set to 'Yes' for those parameters that can be altered while running. If the value under 'Alter' is 'No' then these parameters cannot be altered once AUDCONS is started.

FAILRETRYDELAY seconds

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.900		15		1	3600	Yes
	Client <input type="checkbox"/>	Server <input checked="" type="checkbox"/>		Extended <input type="checkbox"/>	Open Target <input type="checkbox"/>	

ABORTTRANS { ON }
{ OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.100	3.970	OFF		OFF	ON	No
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>		Extended <input checked="" type="checkbox"/>	Open Target <input type="checkbox"/>	

The syntax is:

```
ALTER [ CONS ] [<audmon-name>.]<cons_name> {,cons_parameter }  
[ ,cons_parameter ]  
...
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

cons_name

Is the logical name of a previously defined Consumer.

cons_parameter

Is an attribute to change. It consists of a keyword and a value or set of values for that parameter. Available parameters can be found in the SET CONS section.

If you receive an error during execution of an alter command, do an INFO CONS to check the values.

See the SET CONS command description for more information on the cons_parameters.

CLEARTX CONS Command

The CLEARTX CONS command will cause a CONS to remove a transaction from its internal transaction tracking list and can be used regardless of a transaction's status in TMF.

USE THIS COMMAND VERY CAUTIOUSLY, ONLY AFTER CONSULTATION WITH HP SHADOWBASE SUPPORT, AS IT COULD LEAVE ACTIVE TRANSACTIONS IN TMF FOR A CONS (AND THESE ACTIVE TRANSACTIONS MAY EVENTUALLY BE AUTOMATICALLY ABORTED BY TMF ON THE TARGET SYSTEM, REGARDLESS OF THE EVENTUAL END STATE OF THE ORIGINAL TRANSACTION ON THE SOURCE SYSTEM). USE OF THIS COMMAND MAY RESULT IN TARGET DATABASE INCONSISTENCIES WITH THE SOURCE DATABASE.

The TRANSID entered is the original audit trail transaction identifier that was captured by the COLL, not the CONS's replication transaction identifier for the TMF transaction it starts.

The syntax for CLEARTX is as follows. The <consname> is the name of the CONS object that is tracking the transaction. The TRANSID can be entered in external or internal form and must be a transaction that is active in the CONS's internal tracking list. Use DUMPTX to see the transaction list or INFOTX to see the detailed information for this specific transaction.

HP NonStop Shadowbase Command Definitions

Consumer Command Descriptions

Note that you will be prompted to confirm this command. If the transaction is still active in TMF, you will be prompted two times.

```
CLEARTX [ CONS ] [<audmon-name>.]<consname>, TRANSID <num>
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

DELETE CONS Command

The DELETE CONS command removes a Consumer from the HP Shadowbase system. A Consumer must be stopped and all database specifications (DBS) related to it must be deleted before it can be deleted. The syntax is:

```
DELETE [ CONS ] [<audmon-name>.]<cons_name>
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

cons_name

is the logical name of the Consumer to delete.

DUMPTX CONS Command

DUMPTX can be used to request a listing of transactions being tracked by a COLL or CONS. The command syntax for the DUMPTX command is as follows:

```
DUMPTX /OUT <listfile>/ [CONS] [<audmon-name>.]{{{ <consname>}  
                                     { * }}}  
                                     [, LISTCOUNT<num>] [, RESET]
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

DUMPTX can be requested for a specific CONS object by specifying its name or for all CONS objects by specifying *. LISTCOUNT is used to control the maximum number of transactions in the list. By default, all of the transactions will be output. The OUT file is where the output will be displayed, and could be a spooler location, terminal name (including the home terminal where AUDCOM is running), or a disk file name. If the OUT file is not specified, output will be sent to the AUDCOM's home terminal. RESET will cause the OUT file to be cleared by the first process outputting to it (e.g., when a disk file is being re-used for output). If a disk file name is specified, the file is created as a type 101 edit file. Note that if an unstructured file is pre-created, it must be created with the ODDUNSTR attribute enabled.

Note that large dumps can suspend processing of the CONS process while the output is being generated, so use this command sparingly, generally only at the request of HP Shadowbase Support. Before entering this command, one should have an idea how large the transaction list might be. This can be determined by checking the transaction busy counters in the STATS CONS output.

The information output for the transactions generally identifies timestamps and audit trail positional information, as well as the current state of the transaction. State and other internal information is also output that might be needed by HP Shadowbase Support for trouble-shooting any potential questions or issues associated with HP Shadowbase's transaction tracking.

The following is a sample of the DUMPTX output for a CONS process.

HP NonStop Shadowbase Command Definitions

Consumer Command Descriptions

```
CONS DUMPTX TRANSACTION TRACKING DETAIL AT 2011-02-01:11:20:23 :

=====
NAME: CONS01  PROCESS: \S1.$GSCSX  AUDMON: \S1.$GESM1

TRANS BUSY: 1
-----
TRANS 1 OF 1:
  ADT TRANSID:      \S1(2).0.1983901 / 216172912130719746
  CONS TRANSID:     \S1(2).0.1983902 / 216172912130785282
  BEGIN ADT EVENT INFO:
    ADT TS (EVENT):  2011-02-01 11:18:23.389884  DIFF: 00:02:00.069406
    CONS TS:         2011-02-01 11:18:29.413969  DIFF: 00:01:54.045321
    MAT SEQ/RBA:     2/230432908
  LAST ADT EVENT INFO:
    ADT TS:          2011-02-01 11:18:23.389884  DIFF: 00:02:00.069406
    ID/SEQ/RBA:      AA/2/230432908
    STATE:           0001-ACTIVE  SUB-STATUS: 0050-0001
=====
```

INFO CONS Command

The INFO CONS command displays the current values for the attributes of a Consumer. The syntax is:

```
INFO  /[ OUT list_file ]/  [ CONS ] [<audmon-name>.] { cons_name }
                                     { * }
```

OUT list_file

This directs listing the output to a named file. If omitted, listing output goes to the AUDCOM list file; this is typically the home terminal.

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

cons_name

Is the logical name of a previously defined Consumer.

*

This displays the current values for the attributes for all Consumers in the HP Shadowbase system.

The INFO CONS output displays “*” next to all STP server TCP/IP paths that are listening for an STP client connection, including both primary and backup paths.

An example of the results of doing an INFO CONS command is shown below:

HP NonStop Shadowbase Command Definitions

Consumer Command Descriptions

```
+info cons *
SHADOWBASE VERSION INFO - V5002CH06 - (31MAY13)
CONS CONS-OPN-WGHC1 OBJECT SETTINGS (AUDMON \H2.$WGHM1):
  ABORTTRANS ON
  BACKUPCPU 0
  BASE24MSGLEVEL 0
  BASICCONSNAME ?
  CHECKFORMISSING ON
  CHECKTARGETS OFF
  COLLNAME ?
  CONNECTIONTYPE DIRECT
  CONSGROUPNAME ?
  CONTROLFILE ?
  CONTROLFILEEXT ( 16, 64, 128 )
  CONTROLTYPE PARALLEL
  CPU 1
  CPULIST ( ? )
  DBSMAPFILE ?
  DEBUG OFF
  DOCPREPTIMEOUT 1800
  ENTSEQCHKPTFILE ?
  EXTENDEDSTATS ALL
  FAILMAX 0
  FAILRETRYDELAY 15
  FAILSPAN 900
  FASTRESTART ON
  FASTSTART ON
  FETCHSRCCLNUPTM 60
  FETCHSRCMAXSTMT 500
  FILECLOSEDELAY 30
  FILEDDLDELAY 60
  FILEDDLMSGLEVEL 0
  FILEDDLRETRIES 3
  FREETRANSTIME 180
  FUPLOG ?
  FUPPRI ?
  FUPPROCESS ?
  FUPPROGRAM ?
  FUPSERVER OFF
  IGNOREERROR ( ? )
  IOTRACE OFF
  IOTRACEFILE ?
  IOTRACEFILEEXT ( 16, 64, 160 )
  IOTRACEFILTER ?
  IPMBLOCKING ON
  LATENCYCLOCKADJ 0
  LATENCYTHRESHOLD 0
  LATENCYWARNRATE 0
  MAXFILEOPENS 500
  MAXRETRIES 3
  MAXSEND 30000
  MEASURE OFF
  *NETADDRESS 12.11.5.7
  NETBACKUPADDRESS 10.11.5.6
  NETBACKUPPORT 19555
  NETBACKUPPROCESS \H2.$ZB02B
  NETBUFFERS 30
  NETCOMPRESS OFF
  NETCONNTIMEOUT 180
  NETENCRYPT OFF
  NETERRORSPAN 900
  NETLISTENTIMEOUT 0
  NETMAXERRORS 1
```

HP NonStop Shadowbase Command Definitions

Consumer Command Descriptions

```
*NETPORT 19555
*NETPROCESS \H2.$ZB03B
NETRETRYDELAY 15
NETSENDMINWAIT 0
NETSWAPCONNECT OFF
NETSWITCHONERROR ON
NETTIMEOUT 300
NETUSERNAME SHADUSER
NETUSERPASSWORD SHADPASS
NETWINDOWSIZE 245000
NOEXPAND OFF
NUMTRANSPRESTART 12
OVFLQFILE ?
OVFLQFILEEXTENT ( 1000, 1000, 500 )
OVFLQFILEINDEX ?
PRI 120
PROCESS \H2.$WGHC1
PROGRAM \H2.$QA.QA5002C.AUDCONSN
PULSEAUTOADJ OFF
PULSECLOCKADJ 0
PULSEMAXRESPONSE 30
PULSERATE 0
PULSESVRCLOCKADJ 0
PULSEWAIT 60
PULSEWAITREPEATS 0
PULSEWARNRATE 0
QMGRNAME ?
REJECTFILE ?
REJECTFILEEXISTS ABEND
REJECTFILEEXTENT ( 1000, 1000, 500 )
REJECTLOG OFF
REJECTLOGLOADER OFF
REJECTSKIP ON
RESOLVELOCKS OFF
RESOLVELOCKSQ OFF
RESOLVELOCKSQMAX 1000000
RESOLVELOCKSQMEM 133693438
RESOLVETRANS OFF
RETRYDELAY 60
RETRYERROR ( ? )
SBCMDFILEEXTENT ( 100, 1000, 500 )
SBCMDFILENAME ?
SBCMDKREPCONF ?
SBCMDKREPLOG OFF
SBCMDLOADLOG OFF
SCHEMAPERCENT 100
SOLVHSTRETENTION ?
SOLVMAXIPCLENGTH 29964
SOLVMAXIPCS 250
SOLVMAXSESSIONS 5
SOLVMAXWRITES 15
SOLVMKREXTENT ( 16, 64, 160 )
SOLVMKRFILEPRE \H2.$QA2.LGNSKTC.P.SOLVMKR
SOLVMKRHSTEXTENT ( 64, 128, 160 )
SOLVMKRRETENTION 7
SQLCACHEDEPTH 500
SQLLOCKWAIT 0
STATS ON
STOPERROR ( ? )
TARGETTYPE ?
TIDFILE ?
TIDFILECONSTANT ON
TIDFILEEXTENT ( 1000, 1000, 160 )
```

HP NonStop Shadowbase Command Definitions

Consumer Command Descriptions

```
TIDFILEINDEX ?
TIDFILEPURGE OFF
TMFTRANS ON
TRACE 3
TRACEFILE \H2.$QA2.LGNSKTCP.BILLTRCE
TRACKTXAUDITED ON
TRACKTXFILE ?
TRANSLOG ?
TURBOMAXEVENTS 0
TYPE BASIC
USEREXITCOLCHECK ON
USERTRACE OFF
WARNINGS OFF
```

+

INFOTX CONS Command

INFOTX can be used to request a listing of a specific transaction that is currently being tracked by a CONS. The command syntax for the INFOTX command is as follows:

```
INFOTX /OUT <listfile>/ [CONS] [<audmon-name>.]<consname>,
                                TRANSID <num>
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

INFOTX can be requested for a specific CONS object by specifying its name. The OUT file is where the output will be displayed and is optional. This could be a spooler location, terminal name (including the home terminal where AUDCOM is running, or a disk file name. The home terminal is used when the OUT file is not entered. If a disk file name is specified, the file is created as a type 101 edit file. Note that if an unstructured file is pre-created, it must be created with the ODDUNSTR attribute enabled.

The entered TRANSID can be supplied in either external or internal format.

The output for INFOTX is similar to the DUMPTX output, except that a single transaction is output.

The following is a sample of the INFOTX output for a CONS process.

```
+infotx cons cons00, transid \s1.0.2759400
```

HP NonStop Shadowbase Command Definitions

Consumer Command Descriptions

```
CONS INFOTX TRANSACTION TRACKING DETAIL AT 2008-03-12:13:51:10 :

=====
NAME: CONS00  PROCESS: \S1.$GSCS0

TRANS INFO:
  ADT TRANSID:      \S1.0.2759400 / 216172962953822208
  CONS TRANSID:     \S1.0.2759401 / 216172962953887744
  BEGIN ADT EVENT INFO:
    ADT TS (EVENT):  2008-03-12 13:43:56.673667  DIFF: 00:07:13.531556
    CONS TS:         2008-03-12 13:44:01.693752  DIFF: 00:07:08.511471
    MAT SEQ/RBA:     56/133768
  LAST ADT EVENT INFO:
    ADT TS:         2008-03-12 13:43:56.673667  DIFF: 00:07:13.531556
    ID/SEQ/RBA:     AA/56/133768
    STATE:          0001-ACTIVE  SUB-STATUS: 0050
=====
```

OBEYFORM CONS Command

The OBEYFORM CONS command displays the parameter values in the SET command format for the CONS object. The syntax is:

```
OBEYFORM [/OUT <listfile>/] [CONS] [<audmon-name>.<consname>]
```

listfile

is the name of a file to receive the output. listfile can be an edit file that can subsequently be edited for use.

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

consname

is the logical name of a previously defined Consumer.

Note: Parameters that do not have values set are commented out.

An example of the results of doing an OBEYFORM CONS command is shown below:

```
[BEGIN OBEYFORM OUTPUT AT 2013-10-16:15:22:03]

[SHADOWBASE VERSION INFO - V5002CH06 - (31MAY13)]
[CONS CONS-OPN-WGHC1 OBJECT SETTINGS (AUDMON \H2.$WGHM1):]
  RESET CONS
  SET CONS ABORTTRANS ON
  SET CONS BACKUPCPU 0
  SET CONS BASE24MSGLEVEL 0
```

HP NonStop Shadowbase Command Definitions

Consumer Command Descriptions

```
[SET CONS BASICCONSNAME ?]
SET CONS CHECKFORMISSING ON
SET CONS CHECKTARGETS OFF
[SET CONS COLLNAME ?]
SET CONS CONNECTIONTYPE DIRECT
[SET CONS CONSGROUPNAME ?]
[SET CONS CONTROLFILE ?]
SET CONS CONTROLFILEEXT ( 16, 64, 128 )
SET CONS CONTROLTYPE PARALLEL
SET CONS CPU 1
[SET CONS CPULIST ( ? )]
[SET CONS DBSMAPFILE ?]
SET CONS DEBUG OFF
SET CONS DOCPRETIMEOUT 1800
[SET CONS ENTSEQCHKPTFILE ?]
SET CONS EXTENDEDSTATS ALL
SET CONS FAILMAX 0
SET CONS FAILRETRYDELAY 15
SET CONS FAILSPAN 900
SET CONS FASTRESTART ON
SET CONS FASTSTART ON
SET CONS FETCHSRCCLNUPTM 60
SET CONS FETCHSRCMAXSTMT 500
SET CONS FILECLOSEDELAY 30
SET CONS FILEDDLDELAY 60
SET CONS FILEDDLMSGLEVEL 0
SET CONS FILEDDLRETRIES 3
SET CONS FREETRANSTIME 180
[SET CONS FUPLOG ?]
SET CONS FUPPRI ?
[SET CONS FUPPROCESS ?]
[SET CONS FUPPROGRAM ?]
SET CONS FUPSERVER OFF
[SET CONS IGNOREERROR ( ? )]
SET CONS IOTRACE 0
[SET CONS IOTRACEFILE ?]
SET CONS IOTRACEFILEEXT ( 16, 64, 160 )
[SET CONS IOTRACEFILTER ?]
SET CONS IPMBLOCKING ON
SET CONS LATENCYCLOCKADJ 0
SET CONS LATENCYTHRESHOLD 0
SET CONS LATENCYWARNRATE 0
SET CONS MAXFILEOPENS 500
SET CONS MAXRETRIES 3
SET CONS MAXSEND 30000
SET CONS MEASURE OFF
SET CONS NETADDRESS 10.1.50.70
SET CONS NETBACKUPADDRESS 10.1.50.60
SET CONS NETBACKUPPORT 19555
SET CONS NETBACKUPPROCESS \H2.$ZB02B
SET CONS NETBUFFERS 30
SET CONS NETCOMPRESS OFF
SET CONS NETCONNTIMEOUT 180
SET CONS NETENCRYPT OFF
SET CONS NETERRORSpan 900
SET CONS NETLISTENTIMEOUT 0
SET CONS NETMAXERRORS 1
SET CONS NETPORT 19555
SET CONS NETPROCESS \H2.$ZB03B
SET CONS NETRETRYDELAY 15
SET CONS NETSENDMINWAIT 0
SET CONS NETSWAPCONNECT OFF
SET CONS NETSWITCHONERROR ON
SET CONS NETTIMEOUT 300
SET CONS NETUSERNAME SHADUSER
SET CONS NETUSERPASSWORD SHADPASS
SET CONS NETWINDOWSIZE 245000
SET CONS NOEXPAND OFF
SET CONS NUMTRANSPRESTART 12
[SET CONS OVFLQFILE ?]
SET CONS OVFLQFILEEXTENT ( 1000, 1000, 500 )
```

HP NonStop Shadowbase Command Definitions

Consumer Command Descriptions

```
[SET CONS OVFLQFILEINDEX ?]
SET CONS PRI 120
SET CONS PROCESS \H2.$WGHC1
SET CONS PROGRAM \H2.$QA.QA5002C.AUDCONSN
SET CONS PULSEAUTOADJ OFF
SET CONS PULSECLOCKADJ 0
SET CONS PULSEMAXRESPONSE 30
SET CONS PULSERATE 0
SET CONS PULSESVRCLOCKADJ 0
SET CONS PULSEWAIT 60
SET CONS PULSEWAITREPEATS 0
SET CONS PULSEWARNRATE 0
[SET CONS QMGRNAME ?]
[SET CONS REJECTFILE ?]
SET CONS REJECTFILEEXISTS ABEND
SET CONS REJECTFILEEXTENT ( 1000, 1000, 500 )
SET CONS REJECTLOG OFF
SET CONS REJECTLOGLOADER OFF
SET CONS REJECTSKIP ON
SET CONS RESOLVELOCKS OFF
SET CONS RESOLVELOCKSQ OFF
SET CONS RESOLVELOCKSQMAX 1000000
SET CONS RESOLVELOCKSQMEM 133693438
SET CONS RESOLVETRANS OFF
SET CONS RETRYDELAY 60
[SET CONS RETRYERROR ( ? )]
SET CONS SBCMDFILEEXTENT ( 100, 1000, 500 )
[SET CONS SBCMDFILENAME ?]
[SET CONS SBCMDKREPCONF ?]
SET CONS SBCMDKREPLOG OFF
SET CONS SBCMDLOADLOG OFF
SET CONS SCHEMAPERCENT 100
[SET CONS SOLVHSTRETENTION ?]
SET CONS SOLVMAXIPCLENGTH 29964
SET CONS SOLVMAXIPCS 250
SET CONS SOLVMAXSESSIONS 5
SET CONS SOLVMAXWRITES 15
SET CONS SOLVMKREXTENT ( 16, 64, 160 )
SET CONS SOLVMKRFILEPRE \H2.$QA2.LGNSKTCP.SOLVMKR
SET CONS SOLVMKRHSTEXTENT ( 64, 128, 160 )
SET CONS SOLVMKRRETENTION 7
SET CONS SQLCACHEDEPTH 500
SET CONS SQLLOCKWAIT 0
SET CONS STATS ON
[SET CONS STOPERROR ( ? )]
[SET CONS TARGETTYPE ?]
[SET CONS TIDFILE ?]
SET CONS TIDFILECONSTANT ON
SET CONS TIDFILEEXTENT ( 1000, 1000, 160 )
[SET CONS TIDFILEINDEX ?]
SET CONS TIDFILEPURGE OFF
SET CONS TMFTRANS ON
SET CONS TRACE 3
SET CONS TRACEFILE \H2.$QA2.LGNSKTCP.BILLTRCE
SET CONS TRACKTXAUDITED ON
[SET CONS TRACKTXFILE ?]
[SET CONS TRANSLOG ?]
SET CONS TURBOMAXEVENTS 0
SET CONS TYPE BASIC
SET CONS USEREXITCOLCHECK ON
SET CONS USERTRACE OFF
SET CONS WARNINGS OFF
ADD CONS CONS-OPN-WGHC1

[END OBEYFORM OUTPUT AT 2013-10-16:15:22:03]
```

RESET CONS Command

The RESET CONS command resets a Consumer parameter from the currently set value to the default system value. The syntax is:

```
RESET [ CONS ] [ cons_parameter [ , cons_parameter ] ... ]
```

cons_parameter - If omitted, all cons_parameter values are reset. Cons_parameters appear in detail in the SET CONS command description.

RESUME CONS Command

The RESUME CONS command continues execution of a suspended Consumer. It will continue processing from where it left off. The syntax is:

```
RESUME [CONS] [<audmon-name>.] { cons_name }  
                                { * }
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

cons_name

Is the logical name of the Consumer to resume.

*

This indicates to resume all Consumers.

RESUMEUPD CONS Command

The RESUMEUPD CONS command places the named SUSUPD Consumer into run state. The syntax is:

```
RESUMEUPD { [ CONS ] [<audmon-name>.] { cons_name }
```

HP NonStop Shadowbase Command Definitions

Consumer Command Descriptions

```
                                { * } }
{ [ CONSGROUP ] [<audmon-name>.] { consgroup_name }
                                { * } }
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

cons_name

This resumes execution of all Consumers attached to the named Collector.

*

This resumes execution on all SUSPUPD Consumers in the HP Shadowbase system.

SET CONS Command

The SET CONS command establishes values for the attributes of a Consumer.

In each description, there is a version box. This box contains information, as in the samples below.

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.900			0 indefinite	0	128	Yes
	Client	<input type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended	<input type="checkbox"/>
				Open	Target	<input type="checkbox"/>

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
1.101			DIRECT	DIRECT, TCPIP	No
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended
				Open Target	<input checked="" type="checkbox"/>

To know if your version of HP Shadowbase can use the parameter, the first column titled 'Initial Version', is for when the parameter was first introduced. The next column is for if and when the parameter was last changed. If the parameter has a last changed version then the values in the columns following, are as of that version. The next column provides the default value. Next is provided, either the minimum to maximum values, or the listed value specifications. The value in the last column, titled 'Alter', is set to 'Yes' for those parameters that can be altered while running. If the value under 'Alter' is 'No' then these parameters cannot be altered once AUDCONS is started.

HP NonStop Shadowbase Command Definitions

Consumer Command Descriptions

The last row of the version box is used for “client” Consumer, “server” Consumer “extended” Consumer, and “open target” server. An ‘X’ in the check box means that the parameter is used for this type of Consumer.

The syntax is:

```
SET CONS cons_parameter [ , cons_parameter ] ...
```

cons_parameter is one of the following:

ABORTTRANS { ON }
 { OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.100	3.970		OFF	OFF	ON	No
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended	<input checked="" type="checkbox"/>
					Open Target	<input type="checkbox"/>

Indicates whether abort events are to be replayed as aborts to the target database or processed as reversals (undo's) of the original event. If set to ON, aborts replay as aborts. It defaults to OFF. It must be ON for entry sequenced files/tables and unstructured Enscribe files (See Notes).

Notes:

- Starting with release v3.970, the CONS ABORTTRANS parameter can now be set OFF for unstructured Enscribe files. This means that unstructured file I/O can be replayed by a Consumer with either ABORTTRANS ON or ABORTTRANS OFF. User error 1295 is obsolete. See *HP NonStop Shadowbase Messages Manual* for more information about the error message.
- This parameter is only used with replication to a HP NonStop target (not Open).
- Do not set to ON if the LOADER parameter, ABORTTRANS, is set to ON.
- When set to OFF, depending on your application, any user exits may need special processing logic for properly handling original events versus the undo events. See the SBISUNDOEVENT API in the *HP Shadowbase Programming Manual* for details.
- ABORTTRANS must be set ON for consumers that are replicating entry-sequenced files or tables.

BACKUPCPU num

Initial	Changed
---------	---------

HP NonStop Shadowbase Command Definitions

Consumer Command Descriptions

Version	Version	Values	Default	Value	Specifications	Alter
2.700			None	Valid CPU number		Yes
	Client <input checked="" type="checkbox"/>		Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

This specifies the number of the CPU to be used as a backup CPU for the Consumer process (i.e., i.e., the Consumer runs as a persistent process). The CPU value entered must exist on the system. If the AUD object AUTORESTART parameter is set to ON and the Consumer process fails due to a CPU failure, AUDMON will restart the Consumer process in the BACKUPCPU.

The default is no value assigned, meaning the Consumer does not run as a persistent process (if its primary CPU fails, it will not be restarted in another CPU).

Note: The BACKUPCPU can be altered at any time. If altered, the new value will be used in the event a restart is performed.

BASE24MSGLEVEL number

Initial	Changed	Values	Default	Minimum	Maximum	Alter
Version	Version					
4.060B			0	0	2	Yes
	Client <input checked="" type="checkbox"/>		Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input type="checkbox"/>	

This parameter is used to define the message level (how much detail) that will be used for BASE24 target file errors and reported operations (i.e., i.e., those file errors and reported operations while performing BASE24 extension processing in HP Shadowbase (see the BASE24HANDLERID for more information)). The default is 0 and the valid range is 0 to 2. It can be altered while the Consumer is running.

Only critical messages are logged to EMS when this level is set to 0. When set to level one (1), only uncommon messages are logged. When set to level two (2), detailed trace information is logged, it will produce the greatest number of messages. Level 2 should generally only be used to assist in problem solving.

BASICCONSNAME cons_name

Initial	Changed	Values	Default	Value	Specifications	Alter
Version	Version					
2.000			None	Valid OBJECT Name		No
	Client <input checked="" type="checkbox"/>		Server <input type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

Assigns this extended Consumer to a basic Consumer (see the TYPE parameter for details on extended Consumers and [*HP NonStop Shadowbase Installation and Planning Manual*](#) for extended Consumer configuration examples). It specifies the name of the basic Consumer,

HP NonStop Shadowbase Command Definitions
Consumer Command Descriptions

assigned via an ADD CONS command, to which this extended Consumer is attached. This is a required parameter for an extended Consumer. It has no meaning for a basic Consumer.

Note: Basic and extended Consumer support was added to HP Shadowbase to resolve the Guardian O/S's limit of 100 simultaneous transactions per process (the "TFILE" limit). In the later releases of Guardian, basic and extended Consumer support has generally been replaced by the use of the RESOLVETRANS parameter. Extended Consumers are obsolete and should not be used unless directed by HP Shadowbase Support.

CHECKFORMISSING { ON }
{ OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.091			ON	OFF	ON	No

This parameter is used to enable run-time checking in the CONS to ensure that the source and/or target exists. The default is ON. The parameter can be altered at any time. When set to ON, and depending on the DBS parameters DOIFNOSRCATRAN and DOIFNOTRGATRAN not being set to CONTINUE, a run-time check will be performed by the CONS to determine if the source and/or target file/table exists. When set to OFF, the run-time check is disabled regardless of the DOIFNOSRCATRAN and DOIFNOTRGATRAN parameter settings.

CHECKTARGETS { ON }
{ OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.805			OFF	OFF	ON	No
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended	<input checked="" type="checkbox"/>
					Open Target	<input type="checkbox"/>

Enables or disables checking of files/tables indicated via DBS include specifications. If the value is set to ON, messages stating which files/tables will and will not be replicated and why are written to an edit file. The name of the edit file is <cons_processname>CHK where <cons_processname> is the name assigned to the Consumer with the SET CONS PROCESS command. It is created in the AUDCONS subvolume. Target checking begins when you start a Consumer or add a new DBS. When you are trying a DBS for the first time, turn CHECKTARGETS ON and do not issue a RUN command until you have resolved any problems shown in the CHK file. The default value is OFF.

HP NonStop Shadowbase Command Definitions

Consumer Command Descriptions

The CHECKTARGETS log file will also identify disk volumes that are down or inaccessible as found during the Consumer startup, if set to ON.

COLLNAME coll_name

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
1.000		None		Valid COLL OBJECT Name	No
	Client <input checked="" type="checkbox"/>	Server <input type="checkbox"/>		Extended <input checked="" type="checkbox"/> Open Target <input checked="" type="checkbox"/>	

Is the name of the Collector to which this Consumer is attached. This is a required parameter.

CONNECTIONTYPE { DIRECT }
{ TCPIP }

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
1.101		DIRECT		DIRECT, TCPIP	No
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>		Extended <input checked="" type="checkbox"/> Open Target <input checked="" type="checkbox"/>	

This controls the type of output produced by the Consumer. When set to DIRECT, database operations (inserts, updates and deletes) are shadowed directly to databases on the HP NonStop system. When set to TCPIP, the Consumer generates messages and transmits them to a TCP/IP socket using the HP Shadowbase Transport Protocol (STP). The default value is DIRECT. It must be TCPIP when replicating to an open environment or to a HP NonStop Consumer acting as a server in NonStop to NonStop replication environment without Expand.

CONSGROUPNAME <consgrout_name>

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
3.990		None		Cons Group Name	Yes
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>		Extended <input checked="" type="checkbox"/> Open Target <input checked="" type="checkbox"/>	

This parameter was added to support the pulse feature. The parameter will allow one to group CONS objects together for use with the PULSE and PULSESTATS commands. Note that this parameter may be also be used for other logical Consumer grouping functionality in HP Shadowbase in the future.

A Consumer group can be defined across the same and/or multiple COLL objects. For example, if a certain number of Consumers all replicate to the same target database, you may want to include them in the same Consumer group.

HP NonStop Shadowbase Command Definitions
Consumer Command Descriptions

Set this parameter to the same “name” value for all CONS objects you want to belong to the same group. The value specified must be from 1 to 16 alphanumeric or hyphen characters and must start with a letter. This parameter can be altered at any time.

CONTROLFILE <filename>

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
4.060	4.091				No
		Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/> Open Target <input checked="" type="checkbox"/>	

This parameter is used to define the TMF-audited control file that is used to create a CONS “suspend update” event in the audit trail that will be detected by a Collector in order to cut off the flow of audit trail events to a Consumer. The file must be created on the same node where the Collector runs (and AUDMON typically runs on that node as well). If only the file name portion is supplied, the subvolume will default to the value currently set for the base CMDVOL. Typically, this is the current TACL subvolume. Use the AUDCOM SHOW command to see the value for CMDVOL. The file must be defined on a TMF MAT (master) data volume. Otherwise, an error will occur when you try to add the CONS. This parameter can’t be altered. You must define a CONTROLFILE if you want to use the SUSPENDUPD and RESUMEUPD feature. The default is unspecified (i.e. disabled). The same file can be used for all of your CONS objects.

Support for FUP DDL replication for Enscribe files has been added to HP Shadowbase. The controlfile record size, associated with the CONS CONTROLFILE parameter, has been increased. You must purge any existing CONTROLFILES before restarting HP Shadowbase with the 4.091 and later versions. Otherwise, you will receive user error 1390.

If the control file does not exist, AUDMON will create it. To handle the situations where the Collector and AUDMON are not running on the same node, the control file is created with read and write network access for all users ('N'). Any Safeguard policies that would prevent AUDMON from remotely accessing the file will also have to be relaxed as well in these cases.

Note: The CONS will start in a SUSPUPD state if a CONTROLFILE exists from a previous environment that was shutdown with the CONS left in SUSPUPD state. This will occur even when there is no RESTARTFILE and the COLL starts at EOF or a specified ADT RBA or datetime. Purge the CONTROLFILE if the environment is to be started in a RUNNING state.

CONTROLFILEEXT <primary extent size, secondary extent size,
maximum extents>

Initial Version	Changed Version	Values Default	Value Specifications	Alter
4.060		16,64,128	2,2,16 - 65535,65535,959	No
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/> Open Target <input checked="" type="checkbox"/>	

This parameter defines the extent size that will be used by AUDMON to create a CONS CONTROLFILE. The default extent size is (16,64,128). That is, the primary extent size is 16 pages, the secondary extent size is 64 pages, and the maximum number of extents allocated is 128. The valid range for the primary extent and secondary is 2 through 65535. The valid range for the maximum extents is 16 through 959. The parameter can't be altered.

CONTROLTYPE { SERIAL }
{ PARALLEL }

Initial Version	Changed Version	Values Default	Value Specifications	Alter
2.000		SERIAL	SERIAL, PARALLEL	No
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/> Open Target <input checked="" type="checkbox"/>	

This specifies whether interprocess messages are sent serially or in parallel when using extended Consumers (see the TYPE parameter for details on extended Consumers and *HP NonStop Shadowbase Installation and Planning Manual* for extended Consumer configuration examples). If no extended Consumers are defined, this parameter is ignored (see the CONS TYPE parameter).

As extended Consumers are generally obsolete (unless otherwise directed by HP Shadowbase Support), this parameter should not be used. See CONS TYPE parameter for more information.

Serial means that only one message at a time is sent. Parallel means that messages are sent asynchronously (as soon as possible). Parallel is recommended for high performance needs. Default is SERIAL.

Note: If you have multiple files/tables (fileset) being updated within one transaction by an application(s), this fileset should all be attached to the same Consumer. You can configure a basic and related extended Consumer to process this fileset. Set the CONTROLTYPE to SERIAL to ensure that modifications to the target database replay in the same order as they did in the source database. This may be important for some applications that use the target database, especially those that are time oriented.

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CPU cpu_number

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
1.000			None	Valid CPU number	Yes
	Client	<input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/> Open Target <input checked="" type="checkbox"/>	

Specifies the processor where the Consumer runs. This is a required parameter.

Note: That the CPU can be altered at any time. If altered, the new value will be used in the event a restart is performed.

DEBUG { OFF }
{ ONSTART }
{ ONERROR }

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
2.000			OFF	ONSTART ONERROR	No
	Client	<input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/> Open Target <input checked="" type="checkbox"/>	

Specifies whether a Consumer enters debug mode and under what condition. Generally, this should only be set when HP Shadowbase instructs you to do so for diagnosing problems. However, when you are debugging user exit code you will need to set this parameter to ONSTART to enable you to enter the user exit code in Inspect.

OFF the Consumer does not enter debug mode.
ONSTART the Consumer enters debug mode on start-up.
ONERROR the Consumer enters debug mode on an abnormal event.

If omitted, the default is OFF.

DOCPREPTIMEOUT seconds

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.100			1800	300	32767	Yes
	Client	<input checked="" type="checkbox"/>	Server <input type="checkbox"/>	Extended <input checked="" type="checkbox"/> Open Target <input checked="" type="checkbox"/>		

Is the maximum amount of time allowed for an HP Shadowbase Other Servers to prepare a DOC during start up and during a roll. The default is 1800 seconds (30 minutes). The minimum value is 300 seconds (5 minutes) and the maximum is 32767 (about 9.1 hours). If the DOC preparation is not completed within the specified time, "STP SERVER MAY NOT HAVE COMPLETED CLIENT REQUEST" message will appear in the EMS logs and the Consumer will abend.

ENTSEQCHKPTFILE <filename>

Initial Version	Changed Version	Values Default	Value Specification	Alter
5.002		Not defined	Valid Guardian filename	No

ENTSEQCHKPTFILE is optionally used for ENTRYSEQEXACT replication. When specified, it causes a CONS to checkpoint event audit position information for the last event processed for replication (when it flushes a block to disk). The purpose is to prevent the reprocessing of events following a HP Shadowbase restart for all Enscribe entry-sequenced files configured for ENTRYSEQEXACT replication. Use this parameter when you feel it is important not to reprocess events when a COLL's restart position may result in events being resent to the CONS.

Notes: Files associated with ENTSEQCHKPTFILE should be manually purged if TMF is reinitialized or if you want the CONS to repeat processing for events processed prior to a restart.

When used, each CONS should have a unique file specified.

EXTENDEDSTATS {OFF}
{ALL}
{DBSNAME}
{FILE}

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
4.070		ALL 0	OFF	ALL	Yes
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

This parameter specifies whether a CONS will collect extended statistics and, if so, what will be reported for the STATS AUD command. When set to OFF, extended statistics will not be accumulated. When set to ALL, extended statistics will be gathered and both "CONS DBS STATS" and/or "CONS FILE STATS" will be reported.

When set to DBSNAME, only the "CONS DBS STATS" will be reported. When set to FILE, only the "CONS FILE STATS" will be reported. The default value is ALL which causes both sets of statistics to be generated. The parameter can be altered anytime.

FAILMAX num

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
3.900		0 indefinite	0	128	Yes
	Client <input type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input type="checkbox"/>	Open Target <input type="checkbox"/>	

This specifies the maximum number of failures of a Consumer allowable within the FAILSPAN period. If the AUD parameter AUTORESTART is set to ON and FAILMAX is set to 0, the restart attempts will continue indefinitely. Otherwise, AUDMON will attempt to restart FAILMAX number of times within the FAILSPAN. Valid values are 0 through 128. A value of 1 disables the restart capability.

Note: This parameter is only used for a stand-alone Consumer (i.e., i.e., CONNECTIONTYPE = DIRECT).

FAILRETRYDELAY seconds

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.900		15		1	3600	Yes
	Client <input type="checkbox"/>	Server <input checked="" type="checkbox"/>		Extended <input type="checkbox"/>	Open Target <input type="checkbox"/>	

Specifies the number of seconds AUDMON will delay between restart attempts when the AUDMON AUTORESTART parameter is set to ON and FAILMAX is set to 0 or greater than 1. The default is 15 seconds. Valid values are 1 through 3600.

Note: This parameter is only used for a stand-alone Consumer (i.e., i.e., CONNECTIONTYPE = DIRECT).

FAILSPAN seconds

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.900		900		0	32767	Yes
	Client <input type="checkbox"/>	Server <input checked="" type="checkbox"/>		Extended <input type="checkbox"/>	Open Target <input type="checkbox"/>	

Specifies the span of time over which AUDMON will attempt to automatically restart failed processes when the AUD AUTORESTART parameter is set to on and FAILMAX is set greater than 1. The default is 900 seconds (15 minutes). Valid values are 0 through 32767.

Note: This parameter is only used for a stand-alone Consumer (i.e., i.e., CONNECTIONTYPE = DIRECT).

FASTRESTART {ON}
{OFF}

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.092		ON		OFF	ON	No

This parameter is used to enable the faster Consumer process startup method for auto restarts. When ON and whenever the CONS is started due to an auto restart, it will use the faster method of startup introduced with the CONS FASTSTART parameter. This takes precedence over the CONS FASTSTART parameter and the DBS DOIFNOAUDATSTART, DOIFNOSRCATSTART, and DOIFNOTRGATSTART parameters for auto restart of the CONS by AUDMON. For manual starts (via a START CONS command), the CONS FASTRESTART parameter has no effect, and the behavior specified by the above mentioned CONS and DBS parameters is used. When FASTRESTART is OFF, the CONS always determines its startup behavior based on the other parameters as before. The default value is ON.

FASTSTART {ON}
 {OFF}

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.091			OFF	OFF	On	No

This parameter is used to enable a faster Consumer process startup method. FASTSTART is OFF by default. When FASTSTART is OFF, the Consumer preloads its source/target selection list, which involves some overhead (or a lot depending on the number of DBSs it must scan) to locate the files/tables and file label information. When FASTSTART is ON, the Consumer bypasses this preload step, resulting in the Consumer starting faster (can be significantly faster in some environments). When ON, the Consumer adds source/target file selection information to its list as audit trail events are received to be processed. Consequently, the file label lookup time is spread out over time.

FASTSTART cannot be altered after the CONS has been started. Note that if any of the DBS parameters DOIFNOAUDATSTART, DOIFNOSRCATSTART, or DOIFNOTRGATSTART is set to STOP or WARN, the FASTSTART parameter is ignored and the Consumer preloads its selection list during startup. Also, note that the default for these DBS parameters is WARN.

FETCHSRCCLNUPTM {minutes}

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
5.001			60	0	32767	No

Periodically, the CONS will cleanup source files it is tracking for purposes of “fetch source” processing. This parameter defines the number of minutes of inactivity for a given source that the CONS will wait before

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closing the file and removing it from its internal “fetch source” tracking list. Note that the CONS will only evaluate this approximately every five minutes. Should a source file show up again in a subsequent event, the CONS will reopen the source and add it back to its list. Setting FETCHSRCCLNUPTM to 0 disables the cleanup.

FETCHSRCMAXSTMT {number}

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
5.001			500	2	1500	No

This parameter defines the maximum number of source files the CONS can keep open for the purposes of “fetch source” processing. The default is 500.

FILECLOSEDELAY minutes

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.930			0	0	32767	Yes
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>		Extended <input checked="" type="checkbox"/>	Open Target <input type="checkbox"/>	

Set this parameter to a value greater than 0 to have Enscribe target files closed after the specified number of minutes of inactivity. Valid values are 0 through 32767. Note that a value of 0 keeps the target file opened at all times.

FILEDDLDELAY seconds

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.060B			60	0	32767	Yes
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>		Extended <input checked="" type="checkbox"/>	Open Target <input type="checkbox"/>	

This parameter is used to define the number of seconds that the Consumer will delay before re-attempting a file maintenance operation (e.g., alter, purge, and create operations) for an Enscribe target file. The default is 60 seconds and the valid range is 0 to 32767. It can be altered while the Consumer is running.

FILEDDLMSGLEVEL number

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.060B			0	0	2	Yes
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>		Extended <input checked="" type="checkbox"/>	Open Target <input type="checkbox"/>	

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This parameter is used to define the message level (how much detail) that will be used for error conditions for file maintenance operations for Enscribe target files. The default is 0 and the valid range is 0 to 2. It can be altered while the Consumer is running.

All file related errors will be logged at message levels 0, 1 and 2. Level 1 is reserved for future use. At level 2, successful file create, purge and alter operations will also log an EMS message (otherwise successful operations are not logged).

FILEDDLRETRIES number

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.060B		3		0	32767	Yes
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>		Extended <input checked="" type="checkbox"/>	Open Target <input type="checkbox"/>	

This parameter is used to define the number retries following an error condition for file maintenance operations (e.g., alter, purge, and create operations) for an Enscribe target file. The default is 3 and the valid range is 0 to 32767. 0 means do not retry the operation. It can be altered while the Consumer is running.

FREETRANSTIME seconds

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.700		180		30	3600	Yes
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>		Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

For bi-directional replication, it defines the number of seconds that unused pre-started transactions (see NUMTRANSPRESTART parameter) will be available for use by the Consumer. The default is 180 seconds (3 minutes). The minimum value is 30 seconds and the maximum is 3600 (3 hours). Do not set this value greater than the AUTOABORT value in TM/MP.

FUPLOG [system.] [\$volume.] [subvolume.] <filename>

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.092		none		Valid filename		No
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>		Extended <input type="checkbox"/>	Open Target <input type="checkbox"/>	

This parameter is not yet implemented and will be available in a future release.

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This parameter is used to enable the FUPSERVER CONS to log the commands and responses of the FUP processes used to execute the replicated commands on the target system. There is no default value.

FUPPRI number

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.092			-1 (CONS pri)	1	199	No
	Client <input checked="" type="checkbox"/>		Server <input checked="" type="checkbox"/>	Extended <input type="checkbox"/>	Open Target <input type="checkbox"/>	

This parameter is not yet implemented and will be available in a future release.

This parameter is used to specify the priority for the FUP processes used to execute the replicated commands on the target system. If omitted or -1, the CONS priority will be used.

FUPPROCESS <\$prefix>

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.092			none	Valid prefix		No
	Client <input checked="" type="checkbox"/>		Server <input checked="" type="checkbox"/>	Extended <input type="checkbox"/>	Open Target <input type="checkbox"/>	

This parameter is not yet implemented and will be available in a future release.

This parameter is used to specify the prefix for the FUP processes' process name. If omitted, the FUP processes will run with a system generated name.

FUPPROGRAM [\system.] [\$volume.] [subvolume.] <filename>

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.092			none	Valid filename		No
	Client <input checked="" type="checkbox"/>		Server <input checked="" type="checkbox"/>	Extended <input type="checkbox"/>	Open Target <input type="checkbox"/>	

This parameter is not yet implemented and will be available in a future release.

This parameter is used to specify the program (disk file) name of the FUP program to run. If omitted, the default FUP program in \$SYSTEM.SYSnn.FUP will be run. This parameter should typically be omitted.

FUPSERVER {ON}
 {OFF}

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Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.092			OFF	OFF	ON	No
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended	<input type="checkbox"/>
					Open Target	<input type="checkbox"/>

This parameter is not yet implemented and will be available in a future release.

This parameter is used to enable the CONS to process FUP commands generated by a special customized NonStop FUP program feeding HP Shadowbase as a FEP process (“front end”). Set FUPSERVER to ON to enable FUP replication. The default is OFF.

The CONS CONTROLFILE parameter must be set, as the CONTROLFILE is the interface file between the FEP and the CONS. Only one CONS may be configured as a FUPSERVER for a given HP Shadowbase environment (AUDMON environment) because all such FUP commands must be processed sequentially after all replication threads are quiesced at the appropriate point (see below).

Considerations related to a CONS configured as a FUPSERVER:

- For an STP tcp/ip NonStop to NonStop environment, the FUPSERVER parameter must be set the same for the client CONS and the server CONS.
- For STP tcp/ip mode, make sure that your CONS NETTIMEOUT parameter is set large enough to handle your longest FUP operation.
- In STP tcp/ip mode, the server CONS won’t recognize a client CONS disconnect until the server CONS is finished processing a FUP command against the target (e.g., once the FUP command starts, the server CONS does not (cannot) check for connection status until the FUP command completes).
- For both STP and Expand NonStop to NonStop environments, the CONS (the server CONS for STP environments) must run on the target system (this is the usual location for the server CONS).

The FUPSERVER CONS starts a single FUP process to handle a sequence of FUP commands from the same FUP source process. There may be up to 20 FUP processes executing commands to be replicated running in parallel.

HP Shadowbase starts one FUP process on the target per FUP sequence as needed. The processes will be started in the same CPU as the CONS process. Commands are executed single-threaded where only one FUP process is executing a command at time, and the CONS is suspended while the command is executing (this is required as some FUP commands

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require exclusive access to the file and table objects being manipulated by FUP). The number of FUP processes running is determined by the number of simultaneous source system FUP sessions – each session on the source system results in a process on the target system.

IGNOREERROR (NonStop_error_number
[, NonStop_error_number] ...)

Initial Version	Changed Version	Values	Default	List of NSK file error numbers in parenthesis separated by commas	Alter
2.000		(1,10,11,1127)		Extended	No
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Open Target <input type="checkbox"/>

Related to SQL and Enscribe I/O, this optional parameter identifies HP NonStop errors that are to be ignored. For example, if you know you will be rebuilding the target alternate key files, you may want to set HP Shadowbase to ignore error 4 (failure to open alternate key file). When an ignored error occurs, processing will continue normally after a warning message appears in EMS. This command is repeatable before adding the Consumer. Each list entered will be added to the list of ignored errors. See the *HP NonStop Shadowbase Operations Manual* for a list of default IGNOREERROR numbers.

IOTRACE level

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.962	3.963	0	OFF	0 1 2 3 4 5 6 7 8		Yes
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Open Target	<input checked="" type="checkbox"/>

This sets the level of the IO tracing to enable. The values for the CONS IOTRACE parameter were changed and expanded in release 3.963. The following levels are available:

- 0 = Disables I/O tracing. This is the default.
- 1 = Enscribe record and SQL statement trace data will be output as text following I/O error conditions only.
- 2 = Enscribe record and SQL statement trace data will be output as hexadecimal values following I/O error conditions only.
- 3 = Reserved for the future. Output format is currently the same as 2.
- 4 = Reserved for the future. Output format is currently the same as 2.
- 5 = Enscribe record and SQL statement trace data will be output as text for all I/O operations.
- 6 = Enscribe record and SQL statement trace data will be output as hexadecimal values for all I/O operations.
- 7 = Reserved for the future. Output format is currently the same as 6.
- 8 = Reserved for the future. Output format is currently the same as 6.

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The IOTRACE parameter can be altered while the Consumer is running. Regardless of the IOTRACE setting, unless replicating to Oracle using the OCI server, statements are always outputted as text (hexadecimal is not output).

IOTRACEFILE filename

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
3.962		None	Valid	File Name Include NODE	Yes
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

Enter a valid HP NonStop file name. Each Consumer process should have its own file if one is configured. Note that this file is created with a file code of 180. The best way to view the content is to FTP the file in binary mode to a PC file and then open it with a text editor on the PC. The file must be closed in order to FTP it. The IOTRACEFILE parameter can be altered while the Consumer is running.

IOTRACEFILEEXT (x,y,z)

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.962	3.963	(16, 64, 160)	(2, 2, 16)	(65545, 65535, 959)		Yes
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>		

Set the value for x between 2 and 65535 to define the number of pages for the primary extent.

Set the value for y between the value 2 and 65535 to define the number of pages for the secondary extent.

Set the value for z is between 16 and 959 to define the maximum number of extents to be allocated.

Note: That the default values are (16, 64, 160).

The IOTRACEFILEEXT CONS parameter can be altered while the Consumer process is running. Note that the new extent won't be used until the file is closed by alter IOTRACE to 0, purging the file, and then altering IOTRACE to a value to have it recreated.

IOTRACEFILTER <trace values>

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
3.963		None		A - All Operations	Yes
				E - Enscribe Operations	
				S - SQL Operations	
				T - Commit and abort operations	
				ET - Enscribe commit and abort	
				ST - SQL commit and abort	
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

Where <trace values> is one or more of the alphabetic characters A (for all operations), S (for SQL operations), E (for Enscribe operations), and T (for transaction commit and abort operations). For example:

SET CONS IOTRACEFILTER A

Means trace all operations.

SET CONS IOTRACEFILTER ST

Means to trace SQL operations as well as the commit and abort operations.

The I/O trace format includes a header for each event to identify important information pertaining to the event (e.g., TMF audit trail position, timestamp, related DBS object name, etc.). Note that I/O error information is displayed. The key will be displayed for Enscribe reads that result in an error. A "K" will be displayed next to the offset value when the output format is hexadecimal.

It is best to read the trace file content using a PC text editor (such as CodeWright or NOTEPAD) after first doing a binary FTP of the IOTRACEFILE to a PC file (a FUP COPY of the IOTRACEFILE in hex mode can also be used, however the information may be difficult to read).

Note that IOTRACEFILTER can be altered while the Consumer is running.

IPMBLOCKING { ON }
 { OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.000			ON	OFF	ON	No
	Client <input checked="" type="checkbox"/>	Server <input type="checkbox"/>		Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

Enables or disables blocking of the interprocess messages. When ON, multiple operations may be blocked and sent to a Consumer in a single interprocess message. When the value is set to OFF, only one operation at a time is in the message. The recommended setting for high performance is ON. The default value is ON. IPMBLOCKING affects the size of messages sent between Collectors and Consumers. If your Collectors are writing to Consumers on a different node(s) then message size may be an important consideration and you may need to turn it OFF. This is a site-dependent situation.

Note: When the Collector parameter TURBOMODE is ON, IPMBLOCKING is disregarded. When TURBOMODE is OFF and IPMBLOCKING is OFF, a single event is sent at a time to a CONS.

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When TURBOMODE is OFF and IPMBLOCKING is ON, the Collector will block when it has time (waiting on CONS messages to complete).

LATENCYCLOCKADJ hundredths

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.603		0		-2147483647	2147483647	Yes
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>		Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

Defines a + or - differential to be used for calculating latency when the source and target system clocks are not synchronized. The value is subtracted from or added to the system clock before LATENCYTHRESHOLD is evaluated. The valid values are -2147483647 through 2147483647. Input a minus sign (-) for a negative adjustment; enter no sign for a positive adjustment. The default is 0.

LATENCYTHRESHOLD hundredths

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.603		0	Off	0	2147483647	Yes
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>		Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

This sets the tolerance for latency monitoring. The value is added following the processing of an audittrail event (i.e.,i.e., replicated to target), the Consumer will add this to the associated event timestamp and compare the result to current time to see if the threshold has been exceeded. The default is 0 and means that Consumer latency monitoring is off. Valid values are 0 to 2147483647.

LATENCYWARNRATE seconds

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.603		0		0	2147483647	Yes
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>		Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

Sets the rate at which EMS messages are generated when the Consumer has exceeded or recovers from exceeding the LATENCYTHRESHOLD. Valid values are 0 to 2147483647. Note that you should choose a reasonable value for this parameter for your operating environment. If the value is set too low, it is quite possible that the EMS log will become flooded with messages and impede HP Shadowbase performance. While the default is 0; a value of 60 is recommended, when the parameter LATENCYTHRESHOLD is set to a value greater than 0, to avoid flooding EMS when a "behind" condition exists.

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LIKE cons_name

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
2.000			None	Consumer Name	No
	Client <input checked="" type="checkbox"/>		Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/> Open Target <input checked="" type="checkbox"/>	

This sets the Consumer parameter values to those of the existing Consumer indicated by cons_name.

MAXDBSSPEC number

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
1.000	3.960		128	1	2500	No
	Client <input checked="" type="checkbox"/>		Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

Is the maximum number of database specifications supported by a Consumer process. The number must be at least 1. The sum of all Consumers' MAXDBSSPEC must be less than or equal to the number specified with the SET AUD MAXDBSSPEC parameter. Reducing the MAXDBSSPEC number will reduce the size of the extended segment and make processing somewhat more efficient. Depending on the implementation strategy, setting this parameter may not be necessary.

MAXFILEOPENS number

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.000			16	0	32767	No
	Client <input checked="" type="checkbox"/>		Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input type="checkbox"/>	

Specifies the number of Enscribe files the Consumer will keep open. When the Consumer needs to open a new file and the number of open files equals MAXFILEOPENS, the least recently used file is closed and the new one opened. The higher this number is the less likely files will have to be opened/closed thus improving performance. The default is 16.

MAXRETRIES number

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.000			3	0	32767	No
	Client <input checked="" type="checkbox"/>		Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input type="checkbox"/>	

Is an optional parameter that dictates how many times an SQL or Enscribe operation is retried when an error occurs before the Consumer stops. The default is 3.

MAXSEND num

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Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
1.101			30000	128	30000	No
	Client <input checked="" type="checkbox"/>		Server <input type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

This specifies the maximum TCP/IP send buffer size from the HP Shadowbase Consumer to the HP Shadowbase Other Servers. The send buffer size includes the STP information attached to the message as well as the change data. If a given statement is larger than MAXSEND, it sends several smaller messages. The minimum value is 128. The maximum and default value is 30000.

MEASURE { ON }
{ OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.000			OFF	OFF	ON	Yes
	Client <input checked="" type="checkbox"/>		Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

Enables or disables Measure statistics being gathered for the Consumer. The default value is OFF. Start a Measure session first and then this parameter takes effect. A sample Measure session exists in the file MEASINEX that comes with the product. See the *HP NonStop Shadowbase Operations Manual* for details on using the Measure feature.

NETADDRESS net_address

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
1.101	4.092		None	IP or DNS Name	No
	Client <input checked="" type="checkbox"/>		Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>

This is the network IP address (e.g., 34.35.0.132) or DNS name of the server that will receive the messages. In combination with the NETPORT value, below, it identifies a specific TCP/IP socket that receives data. This is a required parameter when CONNECTIONTYPE is TCPIP. It has no default value. It must match the NETWORK IP ADDRESS parameter entered for the HP Shadowbase Other Servers configuration. If a DNS name is used, and the DNS entry has multiple IP addresses associated with it, a message is output to EMS and the first address returned is used.

NETBACKUPADDRESS net_address

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
3.600	4.092		None	IP or DNS Name	No
	Client <input checked="" type="checkbox"/>		Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>

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This is the network IP address (e.g., 34.35.0.132) or DNS name of the backup server. In combination with the NETBACKUPPORT value, below, it identifies a specific TCP/IP socket that receives the data. If a DNS name is used, and the DNS entry has multiple IP addresses associated with it, a message is output to EMS and the first address returned is used.

NETBACKUPPORT portnumber

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.600		None		1	65535	No
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>		Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

This identifies the port on the NETBACKUPADDRESS to use for the TCP/IP socket. There is no default value. The minimum value is 1 and the maximum value is 65535. The NETBACKUPADDRESS/NETBACKUPPORT combination must be unique for each Consumer. It must match the NETWORK PORT parameter entered in the HP Shadowbase Other Servers configuration on the backup server.

NETBACKUPPROCESS netprocessname

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
3.600		\$ZTC0 Valid	NSK TCP/IP process name		No
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

This identifies the name of the backup HP NonStop network process for the TCP/IP environment.

NETBUFFERS num

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.500		2		1	32	No
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>		

The number of message blocks to be allocated by the Consumer for use in communication with the target process (target Consumer, HP Shadowbase Other Servers, etc). Each message from the Consumer to the target process is replied to with an acknowledgement, up to NETBUFFERS messages can be waiting for an acknowledgement, or “outstanding”, at a time. The minimum value is 1. The maximum is 32. The default value is 2.

Setting the value to 1 defines synchronous communication and the Consumer will wait for an acknowledgement from the target process before sending the next message. A value of 2 or more defines

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asynchronous communication and the Consumer will continue to send messages to the target process up to the NETBUFFERS value even if acknowledgements are outstanding. If you set NETBUFFERS greater than 1, it is recommended that you set the Collector parameter, MAXCONSWRITES, to a similar value.

When replicating over TCP/IP to a cached target, it is recommended that NETBUFFERS be set to 2x MAXCONSWRITES. For replication to a non-cached target, the recommended setting is 4x MAXCONSWRITES.

NETCOMPRESS { ON }
{ OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.910			OFF	OFF	ON	No
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended	<input checked="" type="checkbox"/>
					Open Target	<input type="checkbox"/>

Enables or disables compression. Valid values are ON or OFF. Any combination of NETCOMPRESS and NETENCRYPT can be used. For performance reasons, it is recommended that if NETENCRYPT is ON that NETCOMPRESS be set ON also. The Consumer compresses the message content first and then encrypts the compressed content.

NETCONNTIMEOUT num

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.961			180	1	32767	Yes
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended	<input checked="" type="checkbox"/>
					Open Target	<input checked="" type="checkbox"/>

This parameter is used as the timeout value during an STP client connects to a non-DOC-writing STP server instead of NETTIMEOUT. NETCONNTIMEOUT would typically be set lower than NETTIMEOUT. NETCONNTIMEOUT allows a Consumer to detect connection problems quicker than that previously allowed with NETTIMEOUT, since it is necessary to set NETTIMEOUT greater than the time it takes to process the audit trail events in a single STP message. The default for NETCONNTIMEOUT is 180 seconds. The valid range is 1 through 32767 seconds.

Note: That DOCPREPTIMEOUT is used for connecting to DOC-writing STP servers.

NETENCRYPT { ON }
{ OFF }

Initial	Changed
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Version	Version	Values	Default	Minimum	Maximum	Alter
3.910			OFF	OFF	ON	No
	Client <input checked="" type="checkbox"/>		Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input type="checkbox"/>	

Enables or disables encryption. Valid values are ON or OFF. Any combination of NETCOMPRESS and NETENCRYPT can be used. For performance reasons, it is recommended that if NETENCRYPT is ON that NETCOMPRESS be set ON also. The Consumer compresses the message content first and then encrypts the compressed content.

NETERRORSPAN seconds

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.500			900	1	32767	No
	Client <input checked="" type="checkbox"/>		Server <input type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

Defines the time window within which the NETMAXERRORS number of automatic recovery attempts will be tried when communication failures occur in replication for a TCP/IP connected environment. Valid values are 1 to 32767. The default value is 900 (15 minutes). If the NETMAXERRORS number of recovery attempts is reached within the time window specified, the Consumer will abend.

NETLISTENTIMEOUT seconds

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.980C			0 indefinite	0	32767	No
	Client <input checked="" type="checkbox"/>		Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

Define the period of time in seconds that an STP Consumer server waits for a connection from an STP Consumer client. The valid range for NETLISTENTIMEOUT is 0 through 32767 seconds. The default 0 means to wait indefinitely (i.e., i.e., if the listen () call is successful, the Consumer will wait indefinitely until a connection arrives for it).

It is important that you set the NETLISTENTIMEOUT parameter for a server Consumer for a longer period of time than the NETCONNTIMEOUT CONS object parameter for the STP Consumer client. Also note that if the backup TCP/IP path is not defined for the server, the Consumer will re-establish a listen on a new TCP/IP socket associated with the NETPROCESS, NETADDRESS, and NETPORT parameters after the NETLISTENTIMEOUT period if a connection is not established.

The Consumer was enhanced to automatically switch to the alternate TCP/IP path for an STP server (i.e., the Consumer process that is listening on the TCP/IP socket). This will only be deployed if the CONS

object is configured to set the NETBACKUPPROCESS, NETBACKUPADDRESS, and NETBACKUPPORT parameters.

Once a listen has been posted, an STP server will wait for a connection for NETLISTENTIMEOUT period of time and then re-cycle the “listen” on that path (i.e.,i.e., it will tear down the current socket(s) and re-establish another listen to the primary and/or backup path if defined).

If an STP server is able to establish a listen on one path, but is unable to “listen” for a connection on the other path (i.e.,i.e., an error occurs trying to establish the “listen”), it will retry a “listen” every NETRETRYDELAY period of time until either a connection is established on the successful path or a NETLISTENTIMEOUT condition occurs. Note that the next set of “listens” will be posted after NETRETRYDELAY time lapses.

NETMAXERRORS num

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.500			1	0 indefinite	128	No
	Client <input checked="" type="checkbox"/>		Server <input type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

The maximum number of communication failures to be tolerated in a TCP/IP replication environment before the Consumer. Valid values are 0 through 128. The default value is 1. When set to 0, the connection will be retried indefinitely. Setting NETMAXERRORS to 1 means the automatic recovery is disabled and the Consumer abends as soon as the first communication fault is detected. When the value is set greater than 1, NETMAXERRORS defines the number of failures tolerated within the value defined by NETERRORSPAN.

Note: NETMAXERRORS must be 1 for replicating to HP Shadowbase Other Servers environments that write to a DOC or when an HP Shadowbase Other Servers is configured with multiple ports. If your open target is a DOC, this value must be set to 1. If it is set greater than 1, a NAK_NETMAXERRORS (16) is reported in AUDCOM at start up. In these situations, use the AUDMON AUTORESTART parameter to achieve automatic recovery.

NETPORT num

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
1.100			None	1	65535	No
	Client <input checked="" type="checkbox"/>		Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

This identifies the port on the NETADDRESS to use for the TCP/IP socket. There is no default value. The minimum value is 1 and the

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maximum value is 65535. The NETADDRESS/NETPORT combination must be unique for each Consumer. It must match the NETWORK PORT parameter entered in the HP Shadowbase Other Servers configuration.

NETPROCESS process_name

Initial Version	Changed Version	Values	Default	Value Specifications		Alter
1.100		\$ZTC0	Valid	NSK	TCP/IP process name	No
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open	Target <input checked="" type="checkbox"/>	

This identifies the HP NonStop network process for the TCP/IP environment. The process_name defaults to \$ZTC0.

NETRETRYDELAY seconds

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.500		15		1	3600	No
	Client <input checked="" type="checkbox"/>	Server <input type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open	Target <input checked="" type="checkbox"/>	

When automatic recovery is enabled by setting NETMAXERRORS greater than 1, this parameter defines how many seconds the HP Shadowbase Consumer waits before retrying the TCP/IP connection. It determines how long the server waits before setting up for a new connection attempt after closing the previous connection. Valid values are 1 to 3600. The default is 15 seconds.

NETSENDMINWAIT hundredths

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.500		0		0	1000	Yes
	Client <input checked="" type="checkbox"/>	Server <input type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open	Target <input checked="" type="checkbox"/>	

This defines the minimum time, in hundredths of a second, the HP Shadowbase Consumer waits between sending messages. It is used to keep the messages from flooding the network during times of peak activity when asynchronous communication is configured via the NETBUFFERS Consumer parameter. Valid values are 0 to 1000 (10 seconds). The default value is 0. 0 means there is no delay between messages. Setting this value too high can degrade performance. This value can be altered while HP Shadowbase is running.

NETSWAPCONNECT { OFF }
 { ON }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.933		OFF		OFF	ON	No

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Client	<input checked="" type="checkbox"/>	Server	<input type="checkbox"/>	Extended	<input type="checkbox"/>	Open Target	<input checked="" type="checkbox"/>
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The default behavior is for the NonStop Consumer to start and issue the connect to the target HP Shadowbase Other Servers when NETSWAPCONNECT OFF.

Set NETSWAPCONNECT ON (and a corresponding non-zero value in the target HP Shadowbase Other Servers shadparm.ini file for parameter SHAD_NETSWAP_CONNECT) in order for the CONS to start and wait for a connect request from the Open Target.

Note that the CONS continues to replicate to the non-NSK system.

NETSWITCHONERROR { ON }
{ OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.092			ON	OFF	ON	Yes
	Client	<input checked="" type="checkbox"/>	Server	<input type="checkbox"/>	Extended	<input type="checkbox"/>
				Open Target	<input type="checkbox"/>	

This parameter is used to indicate if the Consumer should try to reconnect on the current STP tcp/ip path before switching over to the alternate path. The default is ON which causes the Consumer switchover to the alternate path following an error. Setting this parameter OFF causes the Consumer to retry the current path (socket) before switching over to the backup path settings. Note that this parameter can be altered at any time.

NETTIMEOUT seconds

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
1.101	2.500		300	1	32767	Yes
	Client	<input checked="" type="checkbox"/>	Server	<input type="checkbox"/>	Extended	<input checked="" type="checkbox"/>
				Open Target	<input checked="" type="checkbox"/>	

Defines how many seconds the HP Shadowbase Consumer waits for acknowledgment from the HP Shadowbase Other Servers following a send. The default value is 300 seconds (5 minutes). The minimum value is 1 and maximum is 32767.

NETUSERNAME username

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
3.900			None	Alphanumeric up to 31 bytes	No
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended
				<input checked="" type="checkbox"/>	Open Target
					<input checked="" type="checkbox"/>

This is used for authorizing an STP connection used for a TCP/IP replication environment. NETUSERNAME is also used during the

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connection process between two Consumers when operating in a HP NonStop-to-NonStop over TCP/IP mode as well as for a “standalone” Consumer used for an Open-to-NonStop replication environment. NETUSERNAME can be up to 31 bytes long and contain any alphanumeric string character except semicolon (;).

NETUSERPASSWORD password

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
3.900		None	Alphanumeric up to 31 bytes		No
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

This is used for authorizing an STP connection used for a TCP/IP replication environment. NETUSERPASSWORD is also used during the connection process between two Consumers when operating in a HP NonStop-to-NonStop over TCP/IP mode as well as for a “standalone” Consumer used for an Open-to-NonStop replication environment. NETUSERPASSWORD can be up to 31 bytes long and contain any alphanumeric string character except semicolon (;).

Note: The INFO command will only display the NETUSERPASSWORD value if the user is SUPER.SUPER or the user that started AUDMON. The NETUSERPASSWORD value will not be displayed if the INFO command was entered via the HP Shadowbase Enterprise Manager. Additionally, a SET CONS LIKE... will not set the NETUSERPASSWORD.

NETWINDOWSIZE size

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.930		65535/32767	0/8192	1048576	No	
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>		

Adjusts the TCP/IP send window size for a Consumer client and the receive window size for a Consumer server. The minimum value is 0 and the standard TCP/IP window size of 8192 is used. The maximum is 1048576. The default for D46/G06 and newer NonStop operating system versions is 65535 and the default for D3x and D42/D45 is 32767. Note that the maximum value may get overridden by the operating system. This parameter cannot be altered once the Consumer has been started.

Note: Higher values tend to yield better TCP/IP performance in some situations.

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For more information on this subject, see the setsockopt usage related to SO_SNDBUF and SO_RCVBUF in the NonStop [TCP/IP and IPX/SPX Programming Manual](#).

NOEXPAND {ON}
{OFF}

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.092			OFF	OFF	ON	NO
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended	<input checked="" type="checkbox"/>
					Open Target	<input checked="" type="checkbox"/>

This parameter is used to enable or disable Consumer features which require expand access. When set to ON, the Consumer skips validation of the MAPTOFILES configured for its DBS's. When set to OFF, the Consumer validates at startup that the MAPTOFILES configured for its DBS's are accessible. The default value is OFF. This parameter should be set to ON for Consumers replicating NSK-NSK without EXPAND access, and left OFF in all other cases.

NUMTRANSPRESTART num

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.700			12	4	100	Yes
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended	<input checked="" type="checkbox"/>
					Open Target	<input checked="" type="checkbox"/>

For bi-directional replication, this defines the number of transactions the Consumer will pre-start for future use. The default is 12. Valid values are 4 to 100.

OVFLQFILE filename

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
3.950			None	Valid File Name	No
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended
				Open Target	<input checked="" type="checkbox"/>

The OVFLQFILE parameter defines the filename associated with the overflow disk queue file. The file will be created at startup using this file name. Note that this parameter is only used and is required if RESOLVELOCKSQ is set to ON. The following is an example to set the parameter:

```
SET CONS OVFLQFILE \MYSYS.$DATA1.MYSUBVOL.OVFLQ
```

Note: The CROVFEX file contains sample FUP input for creating an OVFLQFILE and OVFLQFILEINDEX related to configuring support in HP Shadowbase for RESOVLELOCKSQ.

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OVFLQFILEEXTENT (<x>, <y>, <z>)

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.950		(1000, 1000, 500)		(2, 2, 16)	(65545, 65535, 959)	Yes
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended	<input checked="" type="checkbox"/>
					Open Target	<input checked="" type="checkbox"/>

The OVFLQFILEEXTENT parameter defines the extent size to be used for creation of the OVFLQFILE and OVFLQFILEINDEX. The syntax to set the OVFLQFILEEXTENT parameter is:

SET CONS OVFLQFILEEXTENT (x,y,z)

Where x is between 2 and 65,535 to define the number of pages for the primary extent, and y is between 2 and 65,535 to define the number of pages for the secondary extent, and z is between 16 and 959 to define the maximum number of extents to be allocated. The default is (1000, 1000, 500).

Note: The CROVFEX file contains sample FUP input for creating an OVFLQFILE and OVFLQFILEINDEX related to configuring support in HP Shadowbase for RESOLVELOCKSQ.

OVFLQFILEINDEX <index file name>

Initial Version	Changed Version	Values	Default	Value	Specifications	Alter
3.950		None	Valid	File Name	Include NODE	No
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>		Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

The OVFLQFILEINDEX parameter defines the alternate key file associated with the OVFLQFILE. This alternate key file is required for the overflow disk queue in order to efficiently access the records stored in the file during RESOLVELOCKSQ processing. The following is an example to set the parameter:

SET CONS OVFLQFILEINDEX \MYSYS.\$DATA1.MYSUBVOL.OVFLQIX

Note: The CROVFEX file contains sample FUP input for creating an OVFLQFILE and OVFLQFILEINDEX related to configuring support in HP Shadowbase for RESOLVELOCKSQ.

PRI number

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
1.000		None		1	199	No
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended	<input checked="" type="checkbox"/>
					Open Target	<input checked="" type="checkbox"/>

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Is the priority at which the Consumer runs. The number can be from 1 to 199. If omitted, the default is a priority of 10 less than the priority of AUDMON.

PROCESS [\systemname.] \$cons_name

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
1.000		None	Valid process name (include NODE)	No	
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

This required parameter is the process name of the Consumer on start-up.

PROGRAM [\system.\$volume.subvolume] filename

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
1.000	5.002	AUDCONSN	Valid program file name	No	
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

Is the name of the Consumer object file. As of version 5.002, AUDCONSN will now be used by default as the program file name, as opposed to AUDCONS which was the default previously. It can be fully qualified with the volume and subvolume names. Unless otherwise specified, the volume and subvolume names are the same as the location of the object file for AUDMON.

Note: HP Shadowbase delivers both CISC/AXCEL and native mode versions of the Consumer object code. The native mode Consumer is substantially more efficient (uses less CPU resources) than the non-native compiled (and then AXCEL'd) Consumer object. This is especially true for environments where substantial User Exit processing is being done. HP Shadowbase highly recommends that customers use the native-mode Consumer in their environments (these are the object files called AUDCONSN).

PULSECLOCKADJ <microseconds>

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.990		0	-2147483647	2147483647	Yes	
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>		

It is possible that AUDMON runs on a different HP NonStop node than a Consumer, or a Consumer runs on a different node than a Collector. In the event that there is a discrepancy between the system clocks between the nodes, the PULSECLOCKADJ parameter can be used to adjust the timestamps recorded by a Consumer for its pulse event processing. This

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adjustment (positive or negative) will be added to each of the pulse timestamps the Consumer is responsible for setting.

When PULSEAUTOADJ is enabled this parameter is configured automatically.

The value for the PULSECLOCKADJ parameter is specified in microseconds (i.e., i.e., 1/1,000,000th second intervals). The default value is 0, meaning no time adjustments are made.

The valid range is -2147483647 to 2147483647, i.e., i.e., about 2147 seconds in either direction.

Note: That a plus sign should not be specified for positive numbers. This parameter can be altered at any time.

PULSEAUTOADJ {ON}
{OFF}

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.040		ON				Yes
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended	<input checked="" type="checkbox"/>
					Open Target	<input checked="" type="checkbox"/>

This parameter is used to define if a Consumer is to automatically compute the clock drift between the sending and receiving systems and adjust a server's "pulse" timestamps accordingly. By default, this parameter is set to ON. Set it to OFF to disable the feature.

Note: The pulse clock-timing adjustment message will only be output to EMS if the adjustment exceeded 100 milliseconds and the pulse feature is configured.

PULSEMAXRESPONSE <seconds>

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.990		30		1	1209600	Yes
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended	<input checked="" type="checkbox"/>
					Open Target	<input checked="" type="checkbox"/>

This parameter defines a threshold for the replication latency in seconds (replication latency is defined as the time from when the source pulse I/O occurred to when the target pulse I/O occurred). Since pulses follow the same path in the replication engine as the application data, this is an accurate representation of the time to replicate the application events.

The default is 30 seconds. The valid range is 1 through 1209600 (14 days in seconds).

When a pulse is acknowledged (i.e., AUDMON receives a pulse acknowledgment message), if the difference between the target I/O completion time and the time the pulse was created/inserted into the source pulse file is greater than PULSEMAXREPONSE, AUDMON will output an EMS message to identify that the pulse is “out of band” (i.e., i.e., replication latency is not within PULSEMAXRESPONSE). Subsequent pulses that also come back “out of band” will also be output to EMS, subject to the PULSEWARNRATE interval.

Note: That if a completed pulse is back “in band” (within the PULSEMAXRESPONSE time) and the prior pulse was “out of band”, an EMS message will be reported indicating that pulsing on this replication thread is now “in band”. If HP Shadowbase replication is significantly behind, it might be desirable to alter PULSEMAXRESPONSE to a higher value for a period of time to disable the “out of band” messages from being reported to EMS. This parameter can be altered at any time.

Note: That “true” replication latency monitoring via the PULSEMAXRESPONSE expects the source and target system clocks to be synchronized (either with each other or with GMT). However, this is often not the case. The NonStop and HP Shadowbase Other Servers support similar parameters to correct for the situation where the clocks are not synchronized. On the NonStop side these parameters are PULSECLOCKADJ and PULSESVRLOCKADJ. These parameters can be automatically controlled through the use of the PULSEAUTOADJ parameter.

PULSERATE <seconds>

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.990			0 (disabled)	0	1209600	Yes
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended	<input checked="" type="checkbox"/>
					Open Target	<input checked="" type="checkbox"/>

This parameter is the rate, defined in seconds, at which a pulse will be generated automatically by AUDMON for a source or client Consumer (this parameter is ignored for a target or server Consumer). When PULSERATE is set to 0, pulses will not be generated. When PULSERATE is set greater than 0, pulse events will be generated for all DBS objects with PULSEFILE ON even before the related Consumer process has been started. This is done so that warnings can be produced by AUDMON should the Consumer not get started. Note that some of these early pulse events might not complete if a Collector skips the audit trail locations where they were inserted. This can occur the first time you start HP Shadowbase and an ADTSTARTxxx location is supplied, or you

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have purged a Collector's RESTART file. For this reason, you may want to start HP Shadowbase with the pulse feature disabled (i.e., i.e., PULSERATE 0) and then alter the Consumer to enable them after successful startup.

When enabled (i.e., i.e., PULSERATE is > 0), the first pulse is not sent until the PULSERATE interval expires. If you want one to be sent before this period expires, use the Consumer's PULSE command to send a pulse on demand.

The default is 0 which means pulses will not be generated for this Consumer. The valid range is 0 through 1209600 (14 days in seconds). When greater than zero, the specified value must be longer than the amount of time that the pulse will be tracked (a pulse is tracked while the AUDMON is waiting for the ACK to come back). In other words, only one pulse is "tracked" at a time, and another one cannot be sent until that pulse is no longer being "tracked".

The maximum amount of time that the AUDMON will track the pulse and wait for the ACK is defined by the PULSEWAIT and PULSEWAITREPEATS parameters. The pulse ACK is tracked for a maximum of (PULSEWAIT * (PULSEWAITREPEATS + 1)) seconds. Another pulse cannot be sent until this time expires, or the ACK for the pulse comes back. The pulse generation rate must be set greater than this time (PULSERATE must be set greater than this number). Note that any pulse ACKs that come back after this time expires are still processed and stored in the pulse file.

The PULSEWAIT can be set to 0, which means that the pulse ACK will not be timed (or alarmed). When PULSEWAIT is 0, the PULSERATE can be set to any frequency desired.

HP Shadowbase includes an edit to make sure that you do not set the pulse generation (PULSERATE) and ACK wait intervals (PULSEWAIT, PULSEWAITREPEATS) "too short" to cause extra overhead or alarming.

This parameter can be altered at any time. To disable the pulse feature, alter PULSERATE to 0.

PULSESVRLOCKADJ <microseconds>

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.990			0	-2147483647	2147483647	Yes
	Client <input checked="" type="checkbox"/>		Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

This parameter was added for situations when the clocks differ (i.e., have drifted) between a Consumer client and its Consumer server running on another HP NonStop node, or when the clocks differ (i.e., have drifted) between a source Consumer and an HP Shadowbase Other Servers, PULSESVCLOCKADJ can be used to adjust the server timestamps recorded by the client Consumer process for its server. Notice that this parameter allows the HP NonStop configuration to adjust the timestamps recorded by the target processes, thereby avoiding the need to configure a clock adjustment on those target systems. If the PULSECLOCKADJ parameter is set for the Consumer server on a target node or if an HP Shadowbase Other Servers is configured to adjust its timestamps returned to the HP NonStop Consumer, do not set PULSESVCLOCKADJ parameter or it will result in two timestamp adjustments.

When PULSEAUTOADJ is enabled this parameter is configured automatically.

The value for the PULSESVCLOCKADJ parameter is specified in microseconds (i.e., 1/1,000,000th second intervals). The default value is 0, meaning no time adjustments are made.

The valid range is -2147483647 to 2147483647, i.e., about 2147 seconds in either direction.

Note: That a plus sign should not be specified for positive numbers. This parameter can be altered at any time.

PULSEWAIT <seconds>

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.990			60	0	1209600	Yes
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>		Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

This parameter is the time (in seconds) that AUDMON will wait for a pulse acknowledgement (ACK) to come back after the pulse has been sent from the source. The default is 60 seconds. The valid range is 0 through 1209600 (14 days in seconds). If this time passes before a pulse event is acknowledged, AUDMON will output an EMS warning message. This parameter can be altered at any time.

If HP Shadowbase replication is significantly behind, or if the replication latency for a particular Consumer is often very long, it might be desirable to alter PULSEWAIT to 0 for a period of time to disable the ACK timeout messages from being reported to EMS. The PULSEMAXRESPONSE parameter can then still be used to determine if replication latency should be alarmed or not.

PULSEWAITREPEATS <number>

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.990		0	0	0	16	Yes
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>		

This parameter is the number of PULSEWAIT iterations permitted before AUDMON forgets about tracking a particular pulse. Even though the pulse has timed out, it does not prevent the pulse from completing when (and if) the acknowledgement comes back later. If greater than 0, AUDMON will output a warning EMS message each time the PULSEWAIT timeout occurs waiting on the pulse ACK. For example, if PULSEWAIT is 10 seconds, PULSEWAITREPEATS is 3, and a pulse is sent that does not come back for a minute, the AUDMON will generate 3 EMS messages (one every 10 seconds), and then stop alarming for that slow pulse.

The valid range is 0 through 16. The default is 0 (stop tracking the pulse if the ack does not come back within the PULSEWAIT time). This parameter can be altered at any time.

PULSEWARNRATE <seconds>

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.990		0	0	0	32767	Yes
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>		

This parameter is used to avoid flooding EMS with pulse timeout and pulse “out of band” messages when they consecutively occur. It defines the time interval when pulse timeout (determined by PULSEWAIT) and “out of band” (determined by PULSEMAXRESPONSE) EMS messages will be reported. The default value is 0 seconds, which means that PULSEWAIT and PULSEMAXRESPONSE messages will be generated immediately when those conditions occur.

The value range is 0 to 32767 seconds.

When set greater than 0, AUDMON may delay reporting these pulse warning message until PULSEWARNRATE time has passed since the last similar message. Notice that when there are a considerable number of pulse events that timeout or are “out of band”, setting PULSEWARNRATE can reduce the number of messages sent to EMS. Also, note that oscillations between “out of band” and “in band” will be reported at all times. If you find this situation occurring, you might need to increase the values for PULSEWAIT and/or PULSEMAXRESPONSE. This parameter can be altered at any time.

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QMGRNAME qmgr_name

Initial Version	Changed Version	Values	Default	Value	Specifications	Alter
4.090			None (disabled)		Valid QMGR OBJECT	
Name	No					
		Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input type="checkbox"/>	

Is the name of the Queue Manager to which this Consumer is attached. If this is not specified (which is the default), the Queue Manager facility will not be used for this Consumer.

REJECTFILE filename

Initial Version	Changed Version	Values	Default	Value	Specifications	Alter
3.961			None	\NODE1.\$DATA1.MYSUBVOL.REJS	No	
		Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input type="checkbox"/>	Open Target <input type="checkbox"/>	

This parameter is used to specify the file name where the reject events are to be logged. You specify an HP NonStop format type name up to a four-character file name prefix.

Note: That the first character of the prefix must be alphabetic.
For example: SET CONS REJECTFILE
 \nODE1.\$DATA1.MYSUBVOL.REJS

A sequence number from 0000 through 9999 will be assigned as needed by a Consumer as files roll over. A new file will be created each time the Consumer is started or as a file fills up. Note that you can also force the Consumer to roll over a file by using the ALTER command but not changing the REJECTLOG parameter. For example:

ALTER CONS MYCONS, REJECTLOG ON

This will cause the Consumer to roll over to the next REJECTFILE.

Note: That you have to purge the reject files manually after you are finished with them.

REJECTFILEEXTENT (x,y,z)

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.961		(1000, 1000, 500)		(2, 2, 16)	(65545, 65535, 959)	No
		Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input type="checkbox"/>	Open Target <input type="checkbox"/>	

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This parameter defines the extent size to be used for creation of each REJECTFILE. Where x is between 2 and 65535 to define the number of pages for the primary extent, and y is between 2 and 65535 to define the number of pages for the secondary extent, and z is between 16 and 959 to define the maximum number of extents to be allocated. The default is (1000, 1000, 500).

REJECTFILEEXISTS <ABEND, PURGEDATA, or STOP>

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
3.961			ABEND	ABEND, PURGEDATA, STOP	No
	Client <input checked="" type="checkbox"/>		Server <input checked="" type="checkbox"/>	Extended <input type="checkbox"/> Open Target <input type="checkbox"/>	

This parameter defines what the Consumer should do when it is time to roll to a new file and one already exists. Valid values for REJECTFILEEXISTS are: STOP, PURGEDATA, and ABEND. When set to STOP, the Consumer will stop logging to the rejects files and continue running. When set to PURGEDATA, the Consumer will issue a purgedata against the reject file and commence logging to that file. When set to ABEND, the Consumer will abend. The default value is ABEND.

REJECTLOG { ON }
 { OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.961			OFF	OFF	ON	Yes
	Client <input checked="" type="checkbox"/>		Server <input checked="" type="checkbox"/>	Extended <input type="checkbox"/>	Open Target <input type="checkbox"/>	

This parameter is used to enable reject file logging. By default REJECTLOG is OFF. In addition to setting the REJECTFILE parameter, use the following command to enable the reject file: SET CONS REJECTLOG ON.

REJECTSKIP { ON }
 { OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.961			ON	OFF	ON	Yes
	Client <input checked="" type="checkbox"/>		Server <input checked="" type="checkbox"/>	Extended <input type="checkbox"/>	Open Target <input type="checkbox"/>	

This parameter can be accessed by a custom user exit program to determine if a collision should cause a Consumer to abend or continue running. The user exit can call SBISREJECTSKIP. When REJECTSKIP is set to the default value ON, SBISREJECTSKIP will return 1 (true). When set to OFF, SBISREJECTSKIP will return 0 (false).

Note: That it is up to the user exit code to determine what the outcome will be.

RESOLVELOCKS { ON }
 { OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.700	3.980C	Client <input checked="" type="checkbox"/>	OFF Server <input checked="" type="checkbox"/>	OFF Extended <input checked="" type="checkbox"/>	ON Open Target <input checked="" type="checkbox"/>	No <input checked="" type="checkbox"/>

At times Guardian file error 40 (timeout) and error 73 (record/row locked) can occur in a Consumer, for example when the DBS CONTROLTABLELOCK parameter is set ON. (Note that setting CONTROLTABLELOCK ON might be necessary if a given application locks many SQL rows in a SOURCEFILE). This condition might arise under the following unusual circumstances:

- A given source table/file has many partitions and is being replicated to a table/file with fewer partitions. Note that it is recommended that targets have the same number of partitions as the source.
- When using HP Shadowbase to replicate from Enscribe to SQL due to differences in record/row locking methods. SQL has limitations on the number of rows that can be locked before requiring row locks to escalate to a partition or table lock.
- There is a unique alternate key or index on a source file and a duplicate record error occurs in the source application. This can at times result in transaction/event sequencing issues in the TMF audit trail.

Setting the RESOLVELOCKS parameter to ON enables automatic resolution of locking issues for both Enscribe and SQL files/tables when replicating between HP NonStop databases. The default is OFF, the feature is disabled.

Notes:

- As of release v3.980C the Consumer has been modified to output a general EMS message if it abends due to a target lock error and the CONS object RESOLVELOCKS parameter is OFF.
- As of release v3.970 , the CONS RESOLVELOCKS and RESOLVETRANS parameters can now be set to OFF for unstructured Enscribe files. User errors 1338 and 1340 are obsolete.
- A Consumer object TIDFILE must be configured if RESOLVELOCKS or RESOLVETRANS is set to ON.
- RESOLVELOCKS must be set OFF for consumers that are replicating entry-sequenced files or tables.
- If you are replicating from NonStop to NonStop over TCP/IP, the RESOLVELOCKS and RESOLVETRANS parameters do not need to

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be set on the client side Consumer, when they are enabled on the server side Consumer.

RESOLVELOCKSQ{ON}
 {OFF}

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.950			OFF	OFF	ON	No
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended	<input checked="" type="checkbox"/>
					Open Target	<input checked="" type="checkbox"/>

RESOLVELOCKSQ can be enabled to allow HP Shadowbase to resolve locking anomalies that might result when, for example, a Consumer lock collides with an application lock in an active-active scenario; or when a unique Enscribe alternate keys or unique SQL indices are involved. When necessary, the RESOLVELOCKSQ algorithm will attempt to store up to RESOLVELOCKSQMAX events in memory. It uses a flat memory segment to queue these events. The size of the memory segment is defined by the RESOLVELOCKSQMEM parameter. After the Consumer queues RESOLVELOCKSQMAX events or runs out of memory space in the flat segment, it will then engage an overflow disk queue file to store the remaining events.

Notes:

- If the overflow queue is used, it will be automatically cleared after RESOLVELOCKSQ processing is complete.
- The size one needs for the overflow disk queue is contingent upon the size of transactions that are involved within a given locking scenario. Some experimentation might be needed to determine an effective configuration for your environment.
- If this parameter is set to ON the OVFLQFILE parameter must also be set.
- If you are replicating from NonStop to NonStop over TCP/IP, RESOLVELOCKSQ must be set on both the client and server Consumer sides (so they match). HP Shadowbase checks this because it is important for the Collector to know that this is enabled for this thread.

RESOLVELOCKSQ can be enabled by setting this CONS object parameter to ON. The default is OFF.

RESOLVELOCKSQMAX

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.950			1000000	0	2147483647	No
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended	<input checked="" type="checkbox"/>
					Open Target	<input checked="" type="checkbox"/>

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RESOLVELOCKSQMAX specifies the number of events to store in memory. The default is 1000000. The valid range is 0 through 2,147,483,647, although this maximum far exceeds the maximum flat segment size allowed today.

Note: A value of 0 for RESOLVELOCKSQMAX will result in the overflow disk queue file being engaged immediately.

RESOLVELOCKSQMEM

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.950			133693438	1048576	1040187392	No
	Client <input checked="" type="checkbox"/>		Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

RESOLVELOCKSQMEM defines the maximum size of the flat memory segment used to queue audit trail events during RESOLVELOCKSQ processing. The default size is 133,693,438 bytes. The valid range is 1,048,576 through 1,040,187,392, although this limit is OS dependent.

Notes:

- The memory segment is created for the maximum size but space becomes allocated as needed and that once RESOLVELOCKSQ processing is complete, the segment is deallocated.
- Usually, for performance reasons, events should be allowed to queue in memory before engaging the OVFLQFILE.

RESOLVETRANS

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.950			OFF	OFF	ON	No
	Client <input checked="" type="checkbox"/>		Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

IPM T9055 AER for the NonStop G06 operating system supports up to 1000 concurrent transactions per process. The Consumer will allow up to 1000 simultaneous transactions on operating systems that support it. The Consumer will support 100 concurrent transactions for older HP NonStop operating system versions.

Occasionally there are situations that may require more than the maximum number of concurrent transactions per process. When RESOLVETRANS is set to ON, HP Shadowbase will allow it to go above this limit. Otherwise, extended Consumers will be needed (see the TYPE parameter for details on extended Consumers and [*HP NonStop Shadowbase Installation and Planning Manual*](#) for extended Consumer configuration examples).

Notes:

- Effective with release v3.970, the CONS RESOLVELOCKS and RESOLVETRANS parameters can now be set to OFF for unstructured Enscribe files. User errors 1338 and 1340 are obsolete. See [*HP NonStop Shadowbase Messages Manual*](#) for more information about the error message.
- A Consumer object TIDFILE must be configured if RESOLVELOCKS or RESOLVETRANS is set to ON. The TIDFILE may be set to be constantly in use (TIDFILECONSTANT ON) or only used when needed for RESOLVELOCKS/RESOLVETRANS processing (TIDFILECONSTANT OFF). See the specific subsections in this manual for details on these parameters.
- If you are replicating from NonStop to NonStop over TCP/IP, the RESOLVELOCKS and RESOLVETRANS parameters do not need to be set on the client side Consumer, when they are enabled on the server side Consumer.
- RESOLVETRANS must be set OFF for consumers that are replicating entry-sequenced files or tables.

RETRYDELAY seconds

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.100	2.300		60	0	32767	No
		Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input type="checkbox"/>	

Is an optional parameter that specifies the number of seconds to wait before retrying an SQL or Enscribe I/O following an error identified for retry. Default is 60.

RETRYERROR (NonStop_error_number
 [, NonStop_error_number] ...)
 [-1]

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
2.000	3.961	(12, 35 - 37, 40, 43, 45, 73, 140, 162, 230, 231, 240 -250)		List of NSK file error numbers in parenthesis separated by commas -1 CLEARS PREVIOUS VLAUES	No
		Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input type="checkbox"/>

Related to SQL and Enscribe I/O, this optional parameter identifies HP NonStop errors that are retried up to the current setting for MAXRETRIES after RETRYDELAY. In some cases, SQL errors translate to HP NonStop errors that can be set to be retried. A message appears according to the retry attempt or after exceeding the number of retries. This command is

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repeatable before adding the Consumer. Entering -1 will clear any previously set values. See the *HP NonStop Shadowbase Operations Manual* for list of default retryable error numbers.

SBCMDFILENAME fully <fully-qualified file name>e

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
3.963		None		Valid file name Include NODE	No
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>		Extended <input type="checkbox"/> Open Target <input type="checkbox"/>	

This parameter defines the name of the HP Shadowbase command disk file. It will be created if the SBCMDKREPLOG parameter is set to ON.

SBCMDFILEEXTENT (x,y,z)

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.963		(100, 1000, 500)		(2, 2, 16)	(65545, 65535, 959)	No
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>		Extended <input type="checkbox"/>	Open Target <input type="checkbox"/>	

This parameter defines the extent size to be used for creation of each REJECTFILE. Where x is between 2 and 65535 to define the number of pages for the primary extent, and y is between 2 and 65535 to define the number of pages for the secondary extent, and z is between 16 and 959 to define the maximum number of extents to be allocated. The default is ((100, 1000, 500)).

SBCMDKREPCONF <fully-qualified file name>

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
3.963		None		Valid file name Include NODE	No
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>		Extended <input type="checkbox"/> Open Target <input type="checkbox"/>	

The CONS SBCMDKREPCONF parameter defines a configuration file that contains commands for a KREP process which might be used in the master/slave bi-directional replication environment.

SBCMDKREPLOG { ON }
 { OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.963		OFF		OFF	ON	No
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>		Extended <input type="checkbox"/>	Open Target <input type="checkbox"/>	

The CONS SBCMDKREPLOG parameter is used to enable special logic associated with the KREP process which might be used in the

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master/slave bi-directional replication environment. The default for SBCMDKREPLOG is OFF.

SBCMDLOADLOG { ON }
{ OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.963			OFF	OFF	ON	No
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended	<input type="checkbox"/>
					Open Target	<input type="checkbox"/>

The CONS SBCMDLOADLOG is used to enable special logic associated with LOADER events in the master/slave bi-directional replication environment. The default for SBCMDLOADLOG is OFF.

SCHEMAPERCENT num

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.000			100	1	100	No
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended	<input checked="" type="checkbox"/>
					Open Target	<input type="checkbox"/>

This specifies the percentage of the total amount of schema memory allocated. If there are 100 tables and files captured, a SCHEMAPERCENT of 40 will typically allocate space for at least 40 schemas. The higher the value for the parameter SCHEMAPERCENT, the larger the extended segment of memory and the lower the amount of swapping done thus improving performance. The default value is 100.

SOLVHSTRETENTION num

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.010B			-1	-1	365	No
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended	<input checked="" type="checkbox"/>
					Open Target	<input checked="" type="checkbox"/>

This defines the number of days of SOLV history that will be retained. The default is undefined (-1). When -1, two times the SOLVMKRRETENTION will be used. 0 (zero) means no history retention. 1 through 365 is the range of days supported. This parameter can't be altered once SOLV has been initialized.

SOLVMAXIPLLENGTH num

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.000D			29964	5000	29964	No
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended	<input checked="" type="checkbox"/>
					Open Target	<input checked="" type="checkbox"/>

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This defines the maximum message size used to transmit load data for all SOLV processes that may attach to the related CONS object. The default is 29964 bytes (30k minus a small HP Shadowbase header). The minimum value is 5000 and the maximum is 29964. This value will be passed to the SOLV process when it attaches to a Consumer process and will be used as its maximum message size.

Note that SOLVMAXIPLENGTH can't be altered once the Consumer has been initialized for SOLV processing. This typically occurs when the CONS object is started. However, it's possible to not initially configure a CONS for SOLV processing (i.e., i.e., SOLVMAXSESSIONS is set to 0 but the SOLVMKRFILEPRE is set to its default or has been assigned a value to anticipate future SOLV loads) and then later enable it when loads are needed (i.e., i.e., SOLVMAXSESSIONS is altered to a value greater than 0).

SOLVMAXIPCS num

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.000D			250	2	250	No
	Client <input checked="" type="checkbox"/>		Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

This defines the maximum number of SOLV message data blocks that can be queued in a CONS object for a given SOLV session. The CONS will allocate memory for this maximum when a SOLV session attaches to it. They will be kept allocated for subsequent SOLV sessions after a SOLV load is finished. Each allocated message item is about 30,000 bytes. The default is 250. The minimum value is 2 and the maximum is 250.

Note that SOLVMAXIPCS can't be altered once the Consumer has been initialized for SOLV processing (i.e., i.e., when SOLVMAXSESSIONS is greater than 0 and a "marker file" is defined with SOLVMKRFILEPRE).

SOLVMAXSESSIONS num

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.000D			250	0	64	No
	Client <input checked="" type="checkbox"/>		Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

This defines the maximum number of SOLV processes (SOLV simultaneous loads) that can attach to the related CONS object at a time. To enable a CONS object for SOLV processing, SOLVMAXSESSIONS must be set greater than 0 and the SOLVMKRFILEPRE must be assigned. The default is 5. The minimum value is 0 meaning disabled and the maximum is 64. Note that if you anticipate ever using SOLV, you should configure the SOLVMKRFILEPRE parameter or allow it to remain

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set to its default. Otherwise, you will need to shut down to configure the parameters since SOLVMKRFILEPRE can't be altered at this time once the CONS has been started. Note that SOLVMAXSESSIONS can't be altered once the Consumer has been initialized for SOLV processing.

SOLVMAXWRITES num

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.000D		15		2	15	No
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>		Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

This defines the maximum no-waited messages a SOLV process will send to a Consumer concurrently when it is able to send them. Once SOLV hits this limit it waits for an outstanding message to complete before sending a subsequent message to the CONS. Note that if buffers are available (SOLVMAXIPCS are not all used yet), SOLV will continue to read data from the load file or table into its memory.

The default is 15. The minimum value is 2 and the maximum is 15.

Note that SOLVMAXWRITES can't be altered once the Consumer has been initialized for SOLV processing (i.e., i.e., when SOLVMAXSESSIONS is greater than 0 and a "marker file" is defined with SOLVMKRFILEPRE).

SOLVMKRFILEPRE file name prefix

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
4.000D		None		Valid File Name	No
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>		Extended <input checked="" type="checkbox"/> Open Target <input checked="" type="checkbox"/>	

SOLV uses what is referred to as a "marker file" in its SOLV processing algorithm. Depending on your implementation, it is either the prefix for either an audited or unaudited status file that SOLV uses to manage the load. For this release of SOLV (which only allows audited file/table loading), it specifies the file name prefix for a TMF audited Enscribe file and is updated periodically by SOLV.

The SOLV solution also maintains a historical "marker file". This file holds historical information about prior SOLV loads.

SOLVMKRFILEPRE defines the file name prefix to be used by this CONS object and all SOLV processes that attach to it. This file resides on the source node (generally the same node where the Consumer is running).

The format of the file name is: \system.\$volume.subvolume.file name prefix. Specify up to 7 bytes for the file name prefix portion. SOLV

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appends the character “A” (for active audited), “U” (for active unaudited), and “H” (for history) to the end of the files it creates. Note that the \system.\$volume.subvolume will be resolved from the HP Shadowbase CMDVOL assignment if not specified. However, it is recommended that you fully qualify the filename to avoid any confusion. When not set explicitly, SOLVMKRFILEPRE defaults to the CMDVOL subvolume and the file name “SOLVMKR”. SOLVMKRFILEPRE can’t be altered after the CONS has been started.

SOLVMKREXTENT primary extent size, secondary extent size, maximum extents

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.000D		Primary	16	2	65535	No
		Secondary	64	2	65535	
		Maximum	160	16	959	
		Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

This defines the extent size that will be used for the active SOLV “marker file(s)” (see the SOLVMKRFILEPRE parameter). The default extent size is (16,64,160). That is, the primary extent size is 16 pages, the secondary extent size is 64 pages, and the maximum number of extents allocated is 160. The valid range for the primary extent and secondary is 2 through 65535. The valid range for the maximum extents is 16 through 959.

The SOLVMKREXTENT parameter can’t be altered once the Consumer has been initialized for SOLV processing (i.e., i.e., when SOLVMAXSESSIONS is greater than 0 and a “marker file” is defined with SOLVMKRFILEPRE).

SOLVMKRHSTEXTENT primary extent size, secondary extent size, maximum extents

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.000D		Primary	64	2	65535	No
		Secondary	128	2	65535	
		Maximum	160	16	959	
		Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

This defines the extent size that will be used for the SOLV history “marker file(s)” (see the SOLVMKRFILEPRE parameter). The default extent size is (64,128,160). That is, the primary extent size is 64 pages, the secondary extent size is 128 pages, and the maximum number of extents allocated is 160. The valid range for the primary extent and secondary is 2 through 65535. The valid range for the maximum extents is 16 through 959.

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The SOLVMKRHSTEXTENT parameter can't be altered once the Consumer has been initialized for SOLV processing (i.e., i.e., when SOLVMAXSESSIONS is greater than 0 and a "marker file" is defined with SOLVMKRFILEPRE).

SOLVMKRRETENTION num

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.000D			7	1	365	No
	Client <input checked="" type="checkbox"/>		Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

This defines the number of days of SOLV loading history to be retained in the history "marker file". Periodically, the Consumer will move SOLV "marker" records from the active SOLV marker file(s) to the history file (see the SOLVMKRFILEPRE parameter). The default is 7 days. The minimum value is 1 day and the maximum value is 365 days.

The SOLVMKRRETENTION parameter can't be altered once the Consumer has been initialized for SOLV processing (i.e., i.e., when SOLVMAXSESSIONS is greater than 0 and a "marker file" is defined with SOLVMKRFILEPRE).

SQLCACHEDEPTH num

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.000	3.960		500	2	1500	No
	Client <input checked="" type="checkbox"/>		Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

Specifies the number of SQL statements cached for the Consumer to access quickly.. The maximum is 1500. The default value is 500. It is recommended that this number be set to 4 * <number of targetfiles>.

SQLLOCKWAIT wait_time

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.000	3.960		0	0	32767	No
	Client <input checked="" type="checkbox"/>		Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

Overrides the default SQL lock wait time of 60 seconds. SQLLOCKWAIT is specified in 1/100th second units. The valid range is 0 to 32767. The default value is 0, which means to use the standard SQL lock wait time of 60 seconds.

STATS { ON }
 { OFF }

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Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
1.00	3.963	ON	ON	OFF	ON	No
		Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

This specifies whether resource usage and system performance statistics are to be gathered. The parameter is used in conjunction with the STATS command that displays the statistics. The default is ON.

STOPERROR (NonStop_error_number
[, NonStop_error_number] ...)

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
2.000	3.961	(78, 90 - 97, All others not in ignore and retry lists)		List of NSK file error numbers in parenthesis separated by commas	No
		Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>

Related to SQL and Enscribe I/O, this optional parameter identifies HP NonStop errors that will cause the Consumer to stop. An error message appears before the Consumer stops. This command is repeatable before adding the Consumer. Each list entered is added to the list of errors that cause the process to stop. By default, any error not included in the list of RETRYERRORs or IGNOREERRORs will cause a stop.

TARGETTYPE { NSDIRECT }
{ NSSQL }
{ ORACLE }
{ SQL92 }
{ SQLSBV1 }
{ SQLSTP }
{ SQLSERVER }
{ SYBASE }

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
1.100	4.040	None			No
		Client <input checked="" type="checkbox"/>	Server <input type="checkbox"/>	Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>

This determines the message format generated by the HP Shadowbase Consumer for transmission. Each TARGETTYPE is described below:

- NSDIRECT: Use NSDIRECT TARGETTYPE when replicating to another HP NonStop environment over TCP/IP.
- NSSQL: Enter NSSQL TARGETTYPE when replicating to a HP NonStop SQL target.

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- **ORACLE:** Use the ORACLE TARGETTYPE when replicating to an Open DOC (sbocons) in Oracle format, a non-statement caching Oracle Direct Writer (sborapre), or an Open VMS Direct Writer (sboracle).
- **SQL92:** Use the SQL92 TARGETTYPE when replicating to a statement caching Direct Writer (sboracle, sbsybase) or a DB2 Direct Writer (sbdb2400sc or sbdb2400pe).
- **SQLSBV1:** Use the SQLSBV1 TARGETTYPE to allow control over the SQL datetime field values sent to the HP Shadowbase Other Servers based upon the NonStop-side target table column definition. See the *HP NonStop Shadowbase Installation and Planning Manual* for additional information about this target type.
- **SQLSTP** Use the SQLSTP TARGETTYPE when replicating SQL datetime field values expressed to an HP Shadowbase Other Servers based upon the NonStop-side target table column definition.
- **SQLSERVER:** Use the SQLSERVER TARGETTYPE when replicating to an Open DOC (sbocons) in MSSQL Server format or an MSSQL Server Direct Writer (sbmssql).
- **SYBASE:** Use the SYBASE TARGETTYPE when replicating to an Open DOC (sbocons) in Sybase format or a non-statement caching Sybase Direct Writer (sbsypre).

TIDFILE filename

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
2.000	2.100	None	None	Valid file name Include NODE	No
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input type="checkbox"/>	Open Target <input type="checkbox"/>	

This identifies the file name for the transaction status file/table associated with a basic Consumer. It is ignored for extended Consumers. It must be unique for a Consumer. TIDVOL is used to set the volume and subvolume when a fully qualified file name is not specified. If TIDVOL is not entered and the volume and subvolume are not entered for the file name, the default volume and subvolume are used.

This is an optional parameter. If it is not entered, transaction recording will not be performed by the Consumer and duplicate detection will not be available. If the file/table does not exist on start up, it will be created. See the *HP NonStop Shadowbase Installation and Planning Manual* for more information about the TIDFILE.

HP Shadowbase recommends the use of the CONS TRACKTXFILE along with the TIDFILE. TRACKTXFILE was introduced in v4.091 and is an improved transaction tracking method that is used in conjunction with the

existing TIDFILE to prevent the replay of transactions that have already been processed by a consumer. See the CONS TRACKTXFILE description for additional information.

Notes:

- Do not use TIDFILE when replicating to an open environment.
- If you specify a TIDFILE, you must specify a TIDFILEINDEX.
- If a TIDFILE is used, TIDFILECONSTANT must be set to ON for configurations that use extended Consumer objects.

The CONS object parameters related to the TIDFILE are ignored for extended CONS object definitions (i.e., i.e., those with the type set to EXTENDED). The parameters will be derived from the settings of the related BASIC CONS object.

TIDFILECONSTANT { ON }
 { OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.950			ON	OFF	ON	No
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended	<input type="checkbox"/>
				Open	Target	<input type="checkbox"/>

When the TIDFILECONSTANT parameter is set to the default value ON, all transaction completion states are logged into the TIDFILE. This is used to avoid replaying a transaction after a restart (otherwise certain transactions may be replayed). You must periodically run the TIDCLEAN maintenance program to clean up transaction records that are no longer needed. When the TIDFILECONSTANT parameter is set to OFF, a TIDFILE will only be used temporarily during a RESOLVELOCKS condition. Upon completion of a RESOLVELOCKS, all records are purged from the file so TIDCLEAN is not necessary for the OFF setting.

Notes:

- If a TIDFILE is used, TIDFILECONSTANT must be set to ON for configurations that use extended Consumer objects.
- The CONS object parameters related to the TIDFILE are ignored for extended CONS object definitions (i.e., i.e., those with the type set to EXTENDED). The parameters will be derived from the settings of the related BASIC CONS object.

TIDFILEEXTENT (<x>,<y>,<z>)

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.940		(1000, 1000, 160)		(2, 2, 16)	(65545, 65535, 959)	No
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended	<input type="checkbox"/>
				Open	Target	<input type="checkbox"/>

TIDFILEEXTENT can be used to specify the extent definition to be used for the TIDFILE and TIDFILEINDEX creation.

The following values are accepted for x, y, and z.

- x: Set x between 2 and 65535 to define the number of pages for the primary extent.
- y: Set y between 2 and 65535 to define the number of pages for the secondary extent.
- z: Set z between 16 and 959 to define the maximum number of extents to be allocated.

If you do not specify a TIDFILEEXTENT, as of v4.010B the primary extent size is 1000 pages, the secondary extent size is 1000 pages, and the maximum extents allocated is 160. Prior to v4.010B the defaults were a primary extent size of 16 pages, a secondary extent size of 64 pages and a maximum extents allocated of 160.

Note: The CONS object parameters related to the TIDFILE are ignored for extended CONS object definitions (i.e., i.e., those with the type set to EXTENDED). The parameters will be derived from the settings of the related BASIC CONS object.

TIDFILEINDEX <index file name>

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
3.940		None		Valid file name Include NODE	No
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>		Extended <input type="checkbox"/> Open Target <input type="checkbox"/>	

TIDFILEINDEX is used to specify the file name to be used for creation of a new SQL index or Enscribe alternate key file.

Notes:

- If you specify a TIDFILE, you must specify a TIDFILEINDEX.
- The CONS object parameters related to the TIDFILE are ignored for extended CONS object definitions (i.e., i.e., those with the type set to EXTENDED). The parameters will be derived from the settings of the related BASIC CONS object.

TIDFILEPURGE { ON }
 { OFF }

Initial Version	Changed Version	VALUE IS DISREAGED	Values	Default	Minimum	Maximum	Alter
2.000	3.940	OFF			OFF	ON	Yes
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>			Extended <input type="checkbox"/>	Open Target <input type="checkbox"/>	

ON indicates that the TIDFILE should be cleared on start up. The default is OFF. It is always OFF for an extended Consumer.



WARNING: The TIDFILEPURGE parameter is no longer relevant and its value is disregarded by HP Shadowbase, as of Version 3.940. HP Shadowbase will not purge a TIDFILE if this parameter is set ON (it is ignored). A TIDFILE and the related index or alternate key file must be purged manually. Note that the AUTORESTART capability requires that this feature be disabled. Because the TIDFILE is used to prevent HP Shadowbase from replaying previously processed transactions, you should not purge a TIDFILE or the contents unless instructed to so by HP Shadowbase Support or your intention is to restart HP Shadowbase from a position in the TMF audit trail that contains transactions that have not been processed yet.

TMFTRANS { ON }
{ OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.900			ON	OFF	ON	No
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended	<input checked="" type="checkbox"/>
					Open Target	<input type="checkbox"/>

Setting TMFTRANS to OFF causes the Consumer to operate without TMF transactions when it replays the source transactions against the target database. The default is ON and the Consumer performs I/O with TMF transactions. If it is set to OFF and the target file is audited, a Guardian error 75 will result.

TRACE level_number

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.000			0 disable	0	3	Yes
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended	<input checked="" type="checkbox"/>
					Open Target	<input checked="" type="checkbox"/>

Disables or sets the trace level for AUDCOM and AUDMON event tracing. Level_number specifies the level of detail supplied in the trace. 0 through 3 are valid level_numbers. The default is 0, which disables tracing. A setting of 1 dumps most function names as they are called, 2 dumps additional function names, and detail for certain functions. A setting of 3 dumps detail on additional functions, including COLL/CONS ipc message content, and buffers for certain events.

Note: Tracing generates a lot of additional overhead, and will significantly affect performance. Tracing should never be enabled except under direction from HP Shadowbase Support.

TRACEFILE filename

Initial	Changed
---------	---------

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Version	Version	Values	Default	Value	Specifications	Alter
2.000		None	Valid	file name	Include NODE	Yes
	Client <input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>		Extended <input checked="" type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

When tracing is enabled, this identifies the file name where the results are to be output. The filename can be fully qualified with volume and subvolume names. The file can be an edit-type disk file, spooler file or the home terminal. If writing to a disk file and you anticipate a lot of trace output, pre-creating the disk file with larger extent sizes than the product will create is recommended. The product creates the disk file with extents (14 pages, 28 pages, maxextents 559.) If the TRACEFILE becomes full, HP Shadowbase will continue to run, but will not write anymore trace output.

TRACKTXFILE filename

Initial	Changed	Values	Default	Value	Specifications	Alter
Version	Version					
4.091		None	Valid	file name	Include NODE	No
	Client <input type="checkbox"/>	Server <input checked="" type="checkbox"/>		Extended <input checked="" type="checkbox"/>	Open Target <input type="checkbox"/>	

This parameter is used to define a Consumer transaction tracking file which is used to prevent the CONS, following a restart, from reprocessing transactions that it has already “ended” (completed). This is an alternate method from the TIDFILE with TIDFILECONSTANT set to ON; however, the TRACKTXFILE approach is significantly more efficient and should be enabled in all cases where TIDFILECONSTANT was set to ON. This method does not require TIDCLEAN to be run periodically to clean up the TIDFILE. A given TRACKTXFILE must be unique across all CONS objects. The file is updated by the CONS each time a transaction ends, hence there is a heavy I/O load (but to a rather small set of records). Set the <filename> to a local filename where the CONS is running. Like with the TIDFILE, consider spreading multiple TRACKTXFILES across disks where appropriate.

Note: The new TRACKTXFILE (transaction tracking file) can only be used with environments running a native collector (AUDCOLLN). The TRACKTXFILE is an improved transaction tracking method that is used in conjunction with the existing TIDFILE to prevent the replay of transactions that have already been processed by a consumer.

Note: This file should only exist on a Master Audit Trail volume (MAT). For questions about this, please contact HP Shadowbase Product Management.

TRACKTXAUDITED { ON }
 { OFF }

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Initial Version	Changed Version	Values	Default	Value Specifications	Alter
4.091		ON		ON, OFF	No
	Client	<input type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/> Open Target <input type="checkbox"/>	

This parameter controls whether or not the TRACKTXFILE specified is to be audited or not. As of version 5.000, the TRACKTXFILE must be audited, so this parameter must be set to ON.

TRANSLOG filename

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
2.700		None	Valid file name	Include NODE	No
	Client	<input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/> Open Target <input type="checkbox"/>	

For bi-directional replication, this identifies the name of the TRANSLOG file on the other system used by the Consumer to eliminate potential ping-pong events. Each Collector/Consumer pair should have a unique TRANSLOG file.

Note: Be careful to place the TRANSLOG file on a disk pack that is not being skipped by the return Collector because the return Collector's ADTAUXMASK is set for this disk pack.

TURBOMAXEVENTS num

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.300		0	disable	0	500	No
	Client	<input checked="" type="checkbox"/>	Server <input checked="" type="checkbox"/>	Extended <input checked="" type="checkbox"/> Open Target <input checked="" type="checkbox"/>		

Indicates the number of events to be included in a blocked message (i.e., i.e., when Collector has TURBOMODE set to ON). It defaults to 0 ("not used"). See the TURBOMODE Collector parameter for more information. The maximum value is 500.

TYPE { BASIC }
 { EXTENDED }

Initial Version	Changed Version	Mode generally obsolete	Values	Default	Value Specifications	Alter
2.000		BASIC			BASIC, EXTENDED	No
	Client	<input checked="" type="checkbox"/>	Server	<input type="checkbox"/>	Extended <input checked="" type="checkbox"/> Open Target <input checked="" type="checkbox"/>	

Note: Basic and extended Consumer support was added to HP Shadowbase to resolve the Guardian O/S's limit of 100 simultaneous transactions per process (the "TFILE" limit). In the later releases of Guardian, basic and extended Consumer support

has generally been replaced by the use of the RESOLVETRANS parameter. Extended Consumers should not be used unless directed by HP Shadowbase Support.

Specifies whether Consumer is a basic or an extended type. BASIC Consumers are the main Consumer processes for which DBS Specifications are added (see Section 0 - *Database Specification Command Descriptions* for more information). EXTENDED Consumers are those that are attached, via the BASICCONSNAME parameter, to a previously defined and added basic Consumer. They are responsible for the same files/tables as the basic Consumer to which they relate. The basic and related extended Consumers can be seen as a common process, although they are multiple processes. They can be used to get past an OS imposed limitation of 100 or 1000 simultaneous transactions per process (see the TMFTRANS parameter for more details as this mode generally makes the BASIC/EXTENDED Consumer mode obsolete).

Unless there is a requirement that the target data be written to the files/tables in the precise order that the application (source) files/tables were written to, the recommended CONTROLTYPE for an extended environment is PARALLEL. If CONTROLTYPE is set to SERIAL, data will be written into individual files/tables in the original sequence. The default is BASIC.

Note: If you have multiple files/tables (fileset) being updated within one transaction by an application(s), this fileset should all be attached to the same Consumer. You can configure basic and related extended Consumers to process this fileset. The CONTROLTYPE is set to SERIAL to ensure that modifications to the target database are processed in the same order as they were in the source database. This may be important for some applications that use the target database especially those that are time oriented.

USEREXITCOLCHECK { ON }
{ OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.980C		Client <input checked="" type="checkbox"/>	ON Server <input checked="" type="checkbox"/>	OFF Extended <input checked="" type="checkbox"/>	ON Open Target <input checked="" type="checkbox"/>	No <input checked="" type="checkbox"/>

The Consumer process requires column names for “get’s” and “put’s” to be in upper case with “_” (underscore) characters instead of “-” (hyphen) characters. By default, the API functions will up-shift all lower case characters and replace all hyphen characters with underscores characters. This requires a scan of the column name. If your user exit code uses all upper case column names with underscore characters, you

can further reduce the Consumer CPU utilization by disabling this automatic processing.

This parameter was added to eliminate the up-shifting and hyphen replacement logic associated with user exit processing. Note that you should not disable this unless your user exit is coded correctly (i.e., all column names are upper case with underscore characters). Doing so could result in “column not found” API return codes if your column names aren’t in the correct format. By default, USEREXITCOLCHECK is ON which enables the column name scan logic. To disable this column name “scan and fix-up” logic set USEREXITCOLCHECK OFF.

Note that this parameter can’t be altered after the Consumer has been started.

There are also user exit API functions available that can be used to dynamically enable and disable the column name “scan and fix-up” logic. These API calls will override the USEREXITCOLCHECK parameter setting.

USERTRACE { ON }
 { OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.930			OFF	OFF	ON	Yes
	Client	<input type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended	<input checked="" type="checkbox"/>
					Open Target	<input checked="" type="checkbox"/>

Enables or disables the user exit tracing facility. Set this parameter to ON to enable the user exit tracing facility. Set this parameter to OFF to disable the user exit tracing facility. The default is OFF.

Note: The Consumer parameter USERTRACEFILE and the Database Specification parameter USERTRACE must also be set in order to enable the user exit tracing facility.

USERTRACEFILE filename

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
3.930	4.040C		None	Valid file name Include NODE	Yes
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended
					Open Target
					<input checked="" type="checkbox"/>

This specifies the user exit trace file to be used with the user exit tracing facility. Valid values are any valid HP NonStop disk file name.

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Note: The Consumer parameter USERTRACE and the Database Specification parameter USERTRACE must also be set in order to enable the user exit tracing facility.

Note: This parameter is obsolete as of version 4.040C. The CONS parameter IOTRACE and IOTRACEFILE now handles user exit tracing; that is, it is advisable to set IOTRACE and USERTRACE at the same time. See the CONS parameters IOTRACE and IOTRACEFILE for more information.

WARNINGS { ON }
 { OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
1.000			OFF	OFF	ON	Yes
	Client	<input checked="" type="checkbox"/>	Server	<input checked="" type="checkbox"/>	Extended	<input checked="" type="checkbox"/>
					Open Target	<input type="checkbox"/>

Enables or disables the printing of warning messages from SQL or Enscribe processes to the EMS logs. The default is OFF.

Note: If the INSERTNOTFOUND parameter of any DBS attached to this Consumer is set to ON, it is highly recommended that WARNINGS be set to OFF.

SHOW CONS Command

The SHOW CONS command displays the current values set for the Consumer attributes. The syntax is:

```
SHOW [ / OUT list_file / ] CONS
```

OUT list_file

This directs listing the output to a named file. If this option is omitted, listing output is directed to the AUDCOM list file; this is typically the home terminal.

An example of the results of doing a SHOW CONS command is shown below:

```
+SHOW CONS
CONS OBJECT SETTINGS:
  ABORTTRANS OFF
  BACKUPCPU ?
  BASE24MSGLEVEL 0
  BASICCONSNAME ?
  CHECKFORMISSING ON
  CHECKTARGETS OFF
  COLLNAME ?
  CONNECTIONTYPE DIRECT
  CONSGROUPNAME ?
  CONTROLFILE ?
  CONTROLFILEEXT ( 16, 64, 128 )
  CONTROLTYPE SERIAL
  CPU ?
  CPULIST ( ? )
  DBSMAPFILE ?
  DEBUG OFF
  DOCPREPTIMEOUT 1800
  ENTSEQCHKPTFILE ?
  EXTENDEDSTATS ALL
  FAILMAX 0
  FAILRETRYDELAY 15
  FAILSPAN 900
  FASTRESTART ON
  FASTSTART ON
  FETCHSRCCLNUPTM 60
  FETCHSRCMAXSTMT 500
  FILECLOSEDELAY 0
  FILEDDLDELAY 60
  FILEDDLMSGLEVEL 0
  FILEDDLRETRIES 3
  FREETRANSTIME 180
  FUPLOG ?
  FUPPRI ?
  FUPPROCESS ?
  FUPPROGRAM ?
  FUPSERVER OFF
```

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```
IGNOREERROR ( ? )
IOTRACE OFF
IOTRACEFILE ?
IOTRACEFILEEXT ( 16, 64, 160 )
IOTRACEFILTER ?
IPMBLOCKING ON
LATENCYCLOCKADJ 0
LATENCYTHRESHOLD 0
LATENCYWARNRATE 0
MAXFILEOPENS 16
MAXRETRIES 3
MAXSEND 30000
MEASURE OFF
NETADDRESS ?
NETBACKUPADDRESS ?
NETBACKUPPORT ?
NETBACKUPPROCESS $ZTC0
NETBUFFERS 2
NETCOMPRESS OFF
NETCONNTIMEOUT 180
NETENCRYPT OFF
NETERRORSPAN 900
NETLISTENTIMEOUT 0
NETMAXERRORS 1
NETPORT ?
NETPROCESS $ZTC0
NETRETRYDELAY 15
NETSENDMINWAIT 0
NETSWAPCONNECT OFF
NETSWITCHONERROR ON
NETTIMEOUT 300
NETUSERNAME ?
NETUSERPASSWORD ?
NETWINDOWSIZE 65535
NOEXPAND OFF
NUMTRANSPRESTART 12
OVFLQFILE ?
OVFLQFILEEXTENT ( 1000, 1000, 500 )
OVFLQFILEINDEX ?
PRI 110
PROCESS ?
PROGRAM \H2.$QA2.LGNSKTCP.AUDCONSN
PULSEAUTOADJ ON
PULSECLOCKADJ 0
PULSEMAXRESPONSE 30
PULSERATE 0
PULSESVRCLOCKADJ 0
PULSEWAIT 60
PULSEWAITREPEATS 0
PULSEWARNRATE 0
QMGRNAME ?
REJECTFILE ?
REJECTFILEEXISTS ABEND
REJECTFILEEXTENT ( 1000, 1000, 500 )
REJECTLOG OFF
REJECTLOGLOADER OFF
REJECTSKIP ON
RESOLVELOCKS OFF
RESOLVELOCKSQ OFF
RESOLVELOCKSQMAX 1000000
RESOLVELOCKSMEM 133693438
RESOLVETRANS OFF
RETRYDELAY 60
```

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```
RETRYERROR ( ? )
SBCMDFILEEXTENT ( 100, 1000, 500 )
SBCMDFILENAME ?
SBCMDKREPCONF ?
SBCMDKREPLOG OFF
SBCMDLOADLOG OFF
SCHEMAPERCENT 100
SOLVHSTRETENTION ?
SOLVMAXIPCLENGTH 29964
SOLVMAXIPCS 250
SOLVMAXSESSIONS 5
SOLVMAXWRITES 15
SOLVMKREXTENT ( 16, 64, 160 )
SOLVMKRFILEPRE \H2.$QA2.LGNSKTCP.SOLVMKR
SOLVMKRHSTEXTENT ( 64, 128, 160 )
SOLVMKRRETENTION 7
SQLCACHEDEPTH 500
SQLLOCKWAIT 0
STATS ON
STOPERROR ( ? )
TARGETTYPE ?
TIDFILE ?
TIDFILECONSTANT ON
TIDFILEEXTENT ( 1000, 1000, 160 )
TIDFILEINDEX ?
TIDFILEPURGE OFF
TMFTRANS ON
TRACE OFF
TRACEFILE ?
TRACKTXAUDITED ON
TRACKTXFILE ?
TRANSLOG ?
TURBOMAXEVENTS 0
TYPE BASIC
USEREXITCOLCHECK ON
USERTRACE OFF
WARNINGS OFF
```

SOLVSTATS Command

The SOLVSTATS command provides detailed loading statistics about currently active SOLV jobs. See the [HP NonStop Shadowbase SOLV Manual](#) for more information.

START CONS Command

The START CONS command enables execution of a Consumer. This command must be followed by a RUN command for the Consumer to actually begin execution. AUDCOM requires that this command to be entered after all database specifications have been added. It is required that START CONS be issued before the START COLL command. The syntax is:

HP NonStop Shadowbase Command Definitions

Consumer Command Descriptions

```
START [ CONS ] [<audmon-name>.] {cons_name }
                                     { * }
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

cons_name

Is the name of the Consumer to be started.

*

This indicates to start all Consumers.

Note: By default during the Consumer startup, the Consumer will abend if a disk volume is down or inaccessible. An appropriate EMS message will be logged to identify this situation. To have the Consumer continue, set the SBCONSFINFOERROK TACL parameter to 1 before starting AUDMON. See the *HP NonStop Shadowbase Operations Manual* for details on the SBCONSFINFOERROK TACL parameter.

An EMS message is also logged to identify the related disk volume and the fact that the Consumer is continuing. Note that following a "disk down or inaccessible" error during the source selection initialization processing, the Consumer will continue moving forward with the current SOURCEFILE selection parameters.

STATS CONS Command

The STATS CONS command displays resource usage and system performance statistics for a Consumer. Gathering of these statistics is controlled by the STATS Consumer parameter of the SET CONS command.

The syntax is:

```
STATS [/ OUT list_file /] [ CONS ] [<audmon-
name>.] {{<cons_name>}}
                                     { * }}
[ , RESET ]
[ , INTERVAL <num>
    {{ HRS }
    { MINS }
    { SECS }}]
```

HP NonStop Shadowbase Command Definitions

Consumer Command Descriptions

OUT list_file

This directs listing output to a named file. If this option is omitted, listing output is directed to the AUDCOM list file; this is typically the home terminal.

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

cons_name

Is the name of the Consumer.

*

This indicates to include all Consumers.

RESET

Sets counters used for the measurement to zero.

INTERVAL

Is a time interval between statistics output. When this is specified, the break key must be used to stop the command.

Note: This option is not available for TCP/IP connections.

The STATS CONS command will now show the HP NonStop Shadowbase product T-Number, and release version.

Below you will find sample results from a STATS CONS * command for a system with one Consumer process.

```
SHADOWBASE - T1122 - V6100J06 - (08AUG14)
CONS STATS AT 2014-08-26:10:04:58 :

NAME: CONS-OPN-PCON1    PROCESS: \GRAVIC1.$PCON1    SINCE: 2014-08-26:10:04:31
AUDMON: \GRAVIC1.$PAUDM    DURATION: 00:00:26.906
LATENCY WARNING STATUS: DISABLED
THROUGHPUT PROCESSING SUMMARY:    OPS/SEC:    0.0
TRANSACTION PROCESSING SUMMARY:    CUR CNT:    0    MAX CNT:    0
RECORD INFO:    NUM RCVD    NUM USED    % USED
BEGINS(logical)    0    0    0.0
COMMITTS    0    0    0.0
ABORTS    0    0    0.0
NETWORK COMMITTS    0    0    0.0
NETWORK ABORTS    0    0    0.0
ALTERS    0    0    0.0
CREATES    0    0    0.0
PURGES    0    0    0.0
PURGEDATAS    0    0    0.0
INSERTS    0    0    0.0
DELETES    0    0    0.0
```

HP NonStop Shadowbase Command Definitions

Consumer Command Descriptions

UPDATES	0	0	0.0				
TOTALS	0	0	0.0				
SOLV SUMMARY INFO (LOADS):							
CUR BUSY	MAX BUSY	TOT SESS	COLL DLYS	NUM ALLOC	NUM FREE	MIN FREE	
0	0	0	0	1	0	0	
MESSAGE INFO (EVENT DATA):							
RCVD	MIN SIZE	MAX SIZE	AVG SIZE	MIN OPS	MAX OPS	AVG OPS	
1	42	42	42	0	0	0	
RECV POSTED	%POSTED	MAIN WAIT	%MWAIT	RECV MWAIT	%RECV MWAIT		
00:00:26.246	97.55	00:00:26.246	97.55	00:00:26.246		97.55	
BYTES RCVD	BPS RCVD	LAST RECEIVED TS		LAST RCVD DIFF (CUR)			
42	1	08-26 10:04:46.340		00:00:12.083			
SCHEMA INFO:							
HITS	MISSES	%HITS	INMEM	RESERVED	ALLOC	USED	FREE
0	0	0.0	0	0	0	0	0
STP MESSAGE AND SQL STATEMENT INFO (CLIENT) TO DOC WRITER SERVER:							
SENDS	LAST MESSAGE TIME		CUR BUSY	MAX BUSY	SVR RATE		BPS OUT
6	08-26 10:04:32.119678		0	1	0.0		343848
TOTAL WAIT	WAIT START TIME		MIN SIZE	MAX SIZE	AVG SIZE		ACKD BPS
0.0			16	138	36		0
MIN OPS	MAX OPS	AVG OPS	MIN STMT	MAX STMT	AVG STMT		
0	0	0	0	0	0		
BYTES SENT	SEND TIME		ACKD BYTES	NUM ACKD	AVG RESP		
218	00:00:00.000		0	0	0.000		
TOTAL RESP	MAXD MSG TIME	%MAXD	IS MAXD	MSG QUE	DUR BPS		
00:00:00.000	00:00:00.000	0.00	N	0	8		

The STATS fields that actually appear on your screen depend upon the type of replication you are doing (e.g., Expand versus TCP/IP). All possible fields are described in the following pages.

Sample STATS CONS *, DETAIL output:

SHADOWBASE - T1122 - V6100J06 - (08AUG14)			
CONS STATS AT 2014-08-26:10:05:12 :			
NAME: CONS-OPN-PCON1	PROCESS: \GRAVIC1.\$PCON1	SINCE: 2014-08-26:10:04:31	
	AUDMON: \GRAVIC1.\$PAUDM	DURATION: 00:00:41.162	
LATENCY WARNING STATUS: DISABLED			
THROUGHPUT PROCESSING SUMMARY:		OPS/SEC:	0.0
TRANSACTION PROCESSING SUMMARY:		CUR CNT:	0
		MAX CNT:	0
RECORD INFO:	NUM RCVD	NUM USED	% USED
BEGINS(logical)	0	0	0.0
COMMITTS	0	0	0.0
ABORTS	0	0	0.0
NETWORK COMMITTS	0	0	0.0
NETWORK ABORTS	0	0	0.0
ALTERS	0	0	0.0
CREATES	0	0	0.0
PURGES	0	0	0.0
PURGEDATAS	0	0	0.0
INSERTS	0	0	0.0
DELETES	0	0	0.0
UPDATES	0	0	0.0

HP NonStop Shadowbase Command Definitions

Consumer Command Descriptions

TOTALS	0	0	0.0				
SOLV SUMMARY INFO (LOADS):							
CUR BUSY	MAX BUSY	TOT SESS	COLL DLYS	NUM ALLOC	NUM FREE	MIN FREE	
0	0	0	0	1	0	0	
MESSAGE INFO (EVENT DATA):							
RCVD	MIN SIZE	MAX SIZE	AVG SIZE	MIN OPS	MAX OPS	AVG OPS	
1	42	42	42	0	0	0	
RECV POSTED	%POSTED	MAIN WAIT	%MWAIT	RECV MWAIT	%RECV MWAIT		
00:00:40.502	98.40	00:00:40.501	98.40	00:00:40.501	98.40		
BYTES RCVD	BPS RCVD	LAST RECEIVED TS		LAST RCVD DIFF (CUR)			
42	1	08-26 10:04:46.340		00:00:26.339			
SCHEMA INFO:							
HITS	MISSES	%HITS	INMEM	RESERVED	ALLOC	USED	FREE
0	0	0.0	0	0	0	0	0
STP MESSAGE AND SQL STATEMENT INFO (CLIENT) TO	DOC WRITER	SERVER:					
SENDS	LAST MESSAGE TIME	CUR BUSY	MAX BUSY	SVR RATE	BPS OUT		
6	08-26 10:04:32.119678	0	1	0.0	343848		
TOTAL WAIT	WAIT START TIME	MIN SIZE	MAX SIZE	AVG SIZE	ACKD BPS		
0.0		16	138	36	0		
MIN OPS	MAX OPS	AVG OPS	MIN STMT	MAX STMT	AVG STMT		
0	0	0	0	0	0		
BYTES SENT	SEND TIME	ACKD BYTES	NUM ACKD	AVG RESP			
218	00:00:00.000	0	0	0.000			
TOTAL RESP	MAXD MSG TIME	%MAXD	IS MAXD	MSG QUE	DUR BPS		
00:00:00.000	00:00:00.000	0.00	N	0	5		

CONS STATS AT shows the time at which the STATS CONS command was invoked.

UNDOMODE indicates STATS performed during UNDO processing (v5.001).

NAME shows the logical name of the Consumer. This is the name that was assigned to the Consumer in the ADD CONS command.

PROCESS shows the Consumer process name. This is the process name that was assigned to the Consumer in the SET CONS PROCESS command.

SINCE shows the time at which the statistics began to accumulate (i.e., i.e., process startup or the last STATS, RESET).

AUDMON shows the audmon process name in which the consumer is running.

DURATION shows the time duration for the statistics (that is, the time from the CONS STATS AT timestamp to the time of the SINCE timestamp). It is either from the initial startup of the CONS or from the last RESET.

LATENCY WARNING STATUS the current latency warning status:

- ENABLED – Latency threshold is not configured.
- DISABLED – Latency warning is disabled.
- BEHIND – Latency is greater than the latency threshold.

CAUGHT UP – Latency is within the latency threshold. These last two states will only appear if the LATENCYTHRESHOLD parameter is set greater than 0. In those cases, it also indicates the time it entered that state.

1. **AUDITTRAIL/ARCHIVE PROCESSING SUMMARY** – This section shows the sequence number of the audit trail currently being processed (SEQ). It also shows current position within the audit trail (expressed as the RBA - relative byte address). The LTS (latency timestamp) indicates the timestamp of last event sent by the Collector. In the event that the last event processed was a SOLV event, the line will be preceded by the “*” character. In these cases, the last real audit trail event is also listed. The DIFF LTS shows the time interval since the last event was processed.

Notes:

- The SEQ and RBA displayed for the SOLV event are internally assigned.
2. **THROUGHPUT PROCESSING SUMMARY** – This shows the average number of operations per second processed by the Consumer. OPS/SEC is the average I/O processing throughput rate for inserts, updates, and deletes based upon the “SINCE” time. This number also includes idle time. When replicating from NonStop to NonStop over TCP/IP, OPS/SEC becomes MSGS/SEC on the client Consumer side. MSGS/SEC shows the average number of messages sent.
 3. **TRANSACTION PROCESSING SUMMARY** – This section displays information relating to the transactions being processed.
CUR CNT shows the number of active transactions the Consumer is currently processing.
MAX CNT shows the greatest number of concurrent transactions handled during the current stats period.
 4. **MAX REPQ** – This shows the queue depth of the Consumer when RESOLVELOCKSQ is set to ON. This is the maximum number of transaction identifiers that have been on the queue to be communicated back to the Collector.

RECORD INFO – This section shows information pertaining to the number of BEGIN (logical), COMMIT, ABORT, NETWORK COMMIT, NETWORK ABORT, CREATE, PURGE, PURGEDATA, INSERT, DELETE, UPDATE, AUX POINTERS and OTHER audit trail records that are being processed. NUM RCVD shows the number of the corresponding type of audit trail records that have been received from the Collector.

NUM USED shows the number of the corresponding type of audit trail records that have been processed.

% USED shows the percentage of the corresponding type of audit trail record that have been processed.

Notes:

- The NUM RCVD counters include all insert, update and delete events, including undo events. Undo events are included even if the DBS INSERTS, DBS UPDATES, or DBS DELETES parameters are set to OFF.
- The NUM USED counter includes all inserts and delete undo events applied by the Consumer. This is true even if a user exit calls SBSETIGNORE.

SOLV SUMMARY INFO – This section shows session counters, and buffer utilization counters.

CUR BUSY shows the number of in progress SOLV sessions. Multiple SOLV loads can be in progress in a CONS at the same time.

MAX BUSY shows the maximum number of concurrent SOLV sessions since the CONS started or a RESET was done with the STATS command.

TOT SESS shows the number of distinct SOLV sessions that the CONS has had since startup or a RESET was done.

COLL DLYS is a special counter that gets incremented if a CONS receives a SOLV marker record via the TMF audit trail data for a SOLV load block of data before the load block is received by the CONS from SOLV. Most often, this number will not advance because it is unusual for this sequence to occur.

NUM ALLOC shows the aggregate number of buffers the CONS has allocated for incoming message management for a COLL and SOLV processes.

NUM FREE shows the number of buffers that are currently available for SOLV messages.

MIN FREE shows the historical minimum number of available buffers, it is reset each time a new SOLV session starts.

Notes:

- If MIN FREE is close to NUM ALLOC it is likely that the number of buffers needed by the CONS process was overestimated. Reducing SOLVMAXIPCS should be considered to avoid wasting memory.
- A single message management buffer is allocated at startup. As SOLV processes attach to the CONS to perform a load, additional buffers are allocated based upon the CONS SOLVMAXIPCS parameter. One additional buffer is allocated when the first set of SOLV buffers is allocated when the first SOLV session starts. For example, if you have SOLVMAXIPCS set to 20 and you allow a maximum of 2 concurrent SOLV sessions (based upon the SOLVMAXSESSIONS parameter), there should be 42 buffers

allocated when both SOLV sessions are active. These buffers are retained once they have been allocated (once the load completes, they are returned to the free “pool” and are made available for another loading session).

SOLV ACTIVITY INFO – This section shows the currently active SOLV process names and the SOLV session start time. **This section is only displayed when a SOLV job is in progress.**

MESSAGE INFO (EVENT DATA) – This section shows information related to inter-process messages received from the Collector.

RCVD shows the number of messages received from the Collector.

MIN SIZE shows the minimum size of those messages.

MAX SIZE shows the maximum size of those messages.

AVG SIZE shows the average size of those messages.

MIN OPS shows the minimum number of operations contained in those messages.

MAX OPS shows the maximum number of operations contained in those messages.

AVG OPS shows the average number of operations contained in those messages.

RECV POSTED shows the amount of time that a read is posted on \$receive by the CONS, regardless of what the CONS is doing (i.e., i.e., total time that a read is posted on \$RECEIVE, even when the CONS may be processing other events). This is not a measure of when the CONS is waiting for work (see MAIN WAIT and RECV MWAIT below).

%POSTED shows the percentage of time that a read is posted on \$receive by the CONS (RECV POSTED time divided by total time in the statistics interval).

MAIN WAIT shows the amount of time when a CONS is waiting on the AWAITIO to complete for any event (e.g., a message from the COLL, a timer to complete, an EMS message I/O to complete, an STP message to complete, etc.). This time represents the amount of time that the CONS could be doing more work, but does not have any more work to do because it is waiting for work to arrive or events to complete.

%MWAIT shows the percentage of time that the CONS is waiting on the AWAITIO to complete (MAIN WAIT time divided by total time in the statistics interval).

RECV MWAIT shows the amount of time when a CONS is waiting on the AWAITIO to complete and a read is posted on \$RECEIVE. This time reflects the amount of time the CONS is specifically waiting on messages to arrive from the COLL. Note that the COLL may not be sending more work either because it does not have any, or because it cannot as it already has MAXCONSWRITES messages outstanding to this Consumer.

%RECV MWAIT shows the percentage of time that the CONS is waiting on an AWAITIO to complete and a read is posted on \$receive (RECV MWAIT time divided by total time in the statistics interval).

BYTES RCVD shows the total number of bytes received from the collector.

BPS RCVD shows the average number of bytes per second received from the collector.

SCHEMA INFO – This section shows information related to the schema.

HITS shows how often the Consumer found the schema it needed in memory.

MISSES shows how many times it had to get the schema.

%HITS is the percentage of the time it hit.

INMEM shows how many schema are stored in memory.

RESERVED shows the amount of memory reserved for schema.

ALLOC shows how much of that space is currently allocated.

USED shows how much of the allocated space is in use.

FREE shows how much schema space is free.

SQL STATMENT INFO – This section shows information related to SQL statement caching.

HITS show how many times an SQL statement was used from memory.

MISSES shows how often it had to formulate an SQL statement.

%HITS shows the percentage of the time it hit a SQL statement in memory.

INMEM indicates the number of SQL statements currently in memory.

AVG SRCH shows the average number of searches needed to find an SQL statement.

%FR columns indicate the percentage of the needed SQL statements that were found in the frequency range associated with the column (i.e., i.e., **%FR1** = 1st through 20th stored statements, **%FR2** = 21st through 100th, **%FR3** = 101st through 300th, **%FR4** = more than 301st).

PREPARES shows the number of SQL statement compiles prepared by the CONS. If this number is increasing, it may mean that statement cache size is too small.

PREPARE TIME shows the amount of time the CONS has spent doing SQL compiles.

%PREP shows the percentage of time the CONS has spent doing SQL compiles during this statistics interval (normally will be very small).

AVG PREP shows the average SQL statement compile time computed by dividing PREPARES into the PREPARE TIME.

TARG I/O shows the number of SQL I/O operations executed against the target tables (i.e., i.e., inserts, updates, and deletes).

I/O TIME shows the amount of time the CONS has spent executing SQL statements against the target tables (for inserts, updates, and deletes). This includes the time the Consumer is blocked, waiting for these I/O operations to complete. If high, this could indicate that the file system is

quite busy or is inefficient (e.g., too many index levels in the table or index).

%I/O shows the percentage of time the CONS has spent executing SQL statements against the target tables (for inserts, updates, and deletes) during this statistics interval.

AVG I/O shows the average SQL I/O time computed by dividing the TARG I/O counter into the I/O TIME. If high, this could indicate that the file system is quite busy or is inefficient (e.g., too many index levels in the table or index).

SQL LOCK ERROR INFO – This section shows lock error information about SQL target table I/O activity.

NUM ERRORS is the number of target I/O lock errors that have occurred.

LOCK WAIT is the total amount of time the Consumer was waiting on locks (before SQL returns an error).

AVG LWAIT is the average amount of time the Consumer was waiting on a lock (before SQL returns an error).

RETRY WAIT is the total amount of time the Consumer was delaying between I/O retries as a result of the CONS RETRYDELAY parameter setting.

%TWAIT is the percentage of the stats duration that the CONS is waiting on locks and delaying before retrying.

AVG TWAIT is an I/O average duration that the CONS is waiting on locks and delaying before retrying.

ENSCRIBE I/O INFO – This section shows information about Enscribe I/O activity.

TARG I/O shows the number of Enscribe I/O operations executed against the target files (for inserts, updates, and deletes).

I/O TIME shows the amount of time the CONS has spent executing Enscribe I/O against the target files (for inserts, updates, and deletes). If high, this could indicate that the file system is quite busy or is inefficient (e.g., too many levels in the file or alternate key).

%I/O shows the percentage of time the CONS has spent executing Enscribe I/O against the target files (for inserts, updates, and deletes) during this statistics interval.

AVG I/O shows the average Enscribe I/O time computed by dividing the TARG I/O counter into the I/O TIME. If high, this could indicate that the file system is quite busy or is inefficient (e.g., too many levels in the file or alternate key).

ENSCRIBE LOCK ERROR INFO – This section shows lock error information about Enscribe target file I/O activity.

NUM ERRORS is the number of target I/O lock errors that have occurred.

LOCK WAIT is the total amount of time the Consumer was waiting on locks (before SQL returns an error).

AVG LWAIT is the average amount of time the Consumer was waiting on a lock (before SQL returns an error).

RETRY WAIT is the total amount of time the Consumer was delaying between I/O retries as a result of the CONS RETRYDELAY parameter setting.

%TWAIT is the percentage of the stats duration that the CONS is waiting on locks and delaying before retrying.

AVG TWAIT is an I/O average duration that the CONS is waiting on locks and delaying before retrying.

USER EXIT INFO (I/O EVENTS, TRANSACTION EVENTS) – This section shows information relating to user exit processing. **This section is only displayed when user exit activity has occurred in the consumer.**

NUM USRXEV shows the number of USRXPROCESS calls associated with insert, update, and delete events. This is the number of times that the customer's user exit code was invoked because the DBS USEREXITID value was non-zero.

USRXEV TIME shows the amount of time the CONS has spent executing in the USRXPROCESS and underlying code to process insert, update, and delete events. This is the total time (wall clock) that the CONS was executing user exit code. A large value may indicate that the user exit code is inefficient.

%USRXEV shows the percentage of time the CONS has spent executing in the USRXPROCESS and underlying code to process insert, update, and delete events.

NUM USRXTR shows the number of USRXPROCESS calls associated with "end transaction" events (i.e., i.e., the number of times the customer's user exit code was invoked to process transaction abort and commit events).

USRXTR TIME shows the amount of time the CONS spent executing in USRXPROCESS and underlying code to process "end transaction" events (i.e., i.e., the amount of time the customer's user exit code spent processing abort and commit transaction events).

%USRXTR shows the percentage of time the CONS has spent executing in USRXPROCESS and underlying code to process "end transaction" events.

NUM USRXEX when output, is the number of USRXEXCEPTION calls associated with SQL target I/O error conditions.

USRXEX TIME shows the amount of time the CONS has spent executing in the USRXEXCEPTION and underlying code to handle SQL target I/O error conditions.

%USRXEX shows the percentage of time the CONS has spent executing in the USRXEXCEPTION and underlying code to handle SQL target I/O error conditions.

STP MESSAGE INFO (CLIENT) – This section shows information about the messages sent to or received from a server on another system.

SENDS shows the total number of messages sent.

LAST MESSAGE TIME is the date and time the last message was sent.

CUR BUSY is the current number of messages that have been sent to the server and not yet acknowledged. If this value is at or near the maximum constantly, it could indicate a slow network or target process.

MAX BUSY is the greatest value **CUR BUSY** reached since the **STATS** values began to accumulate.

MSG RATE is the average I/O throughput rate for inserts, updates, and deletes based upon the target (stand-alone Consumer or HP Shadowbase Other Servers) acknowledgements. **MSG RATE** is the throughput rate (measured in operations per second) for operations processed by the Consumer. **MSG RATE** measures the time from when the message is sent to the target (stand-alone Consumer or HP Shadowbase Other Servers) until the message is acknowledge by the target (stand-alone Consumer or HP Shadowbase Other Servers). To differentiate **MSG RATE** from **OPS/SEC**, **OPS/SEC** is average number of operations processed by the Consumer per second. **OPS/SEC** measures the total time between each operation (including idle time).

BPS OUT is the average bytes per second sent to the server.

TOTAL WAIT is the total number of seconds spent waiting when the Consumer has a message to send, but is prevented from doing so by the **NETSENDMINWAIT** value.

WAIT START TIME is the time the **TOTAL WAIT** began.

MIN SIZE is the size, in bytes, of the smallest message sent.

MAX SIZE is the size of the largest message.

AVG SIZE is the average size of the messages.

ACKD BPS shows the number of message bytes acknowledged per second computed by dividing the **DURATION** into the **ACKD BYTES**. This number reflects the approximate application level bytes-per-second that HP Shadowbase is delivering to the target, and that is being fully application level acknowledged (STP ACK received) on this communication channel. It is a measure of how “fast” replication is running.

BYTES SENT shows the total number of application level bytes sent using STP mode to a server process. Note that this may include messages that have yet to be acknowledged.

SEND TIME shows the amount of time the **CONS** has spent transmitting STP message content to an STP server process. Since the **CONS** will continue to issue sends for messages (via **send_nw** calls) and wait for the corresponding **AWAITIO** event to return before continuing with other work, this indicates how efficient tcp/ip is in accepting the data to be transmitted to the target system. A large value here indicates that tcp/ip is taking a long time to accept data that is to be sent, and this time is thus not

available to the CONS for it to be performing other work. If tcp/ip is inefficient, make sure the NETWINDOWSIZE is set as large as it can be. **ACKD BYTES** shows the number of STP message bytes that have been acknowledged by an STP server process (accepted and “safe stored” by the server).

NUM ACKD shows the number of STP messages that have been acknowledged by an STP server process (accepted and “safe stored”).

AVG RESP shows the average response time from the time an STP message is sent until the time it has been acknowledged by an STP server process (computed by dividing NUM ACKD into TOTAL RESP). This is an indication of the end-to-end processing capacity of the HP Shadowbase processes (from the CONS to the target process that is processing that information and replying with an ack). Large values here indicate that each message is taking a long time to 1) transmit to the target, 2) be processed at the target, or 3) for the ACK response to be returned to the CONS.

TOTAL RESP shows the total response time for NUM ACKD (acknowledged) STP messages, from the time an STP message is sent until the time it has been acknowledged.

MAXD MSG TIME shows the amount of time that the CONS has additional STP messages to send but is unable to do so because it has NETBUFFERS (CONS parameter) number of messages pending to an STP server process. If greater than zero, the CONS has additional data to send, but cannot send it yet because NETBUFFERS is too low. If greater than zero, you should increase the NETBUFFERS value (it should generally be at least 2x the COLLs MAXCONSWRITES value).

%MAXD shows the percentage of time that the CONS is unable to send additional messages to an STP server process because it has NETBUFFERS number of messages pending. Consider increasing NETBUFFERS to improve performance.

IS MAXD shows “Y” if the CONS is currently unable to send additional messages to an STP server process because it has NETBUFFERS number of messages pending. Shows “N” if the CONS is below NETBUFFERS number of messages pending or there are no messages blocked from being sent. If Y, consider increasing the NETBUFFERS value.

MSG QUE shows the number of STP messages that are queued that can’t be sent to an STP server process because it has NETBUFFERS number of messages pending. If greater than zero, consider increasing the NETBUFFERS value.

DUR BPS shows the number of message bytes sent per second based upon the duration, computed by dividing DURATION into BYTES SENT. This is an indication of the TCP/IP send rate for this channel..

STP MESSAGE INFO (SERVER) – This section shows information about the messages sent to or received from a client on another system.

RCVD shows the total number of messages received.

LAST MESSAGE TIME shows the date and time the last message was received.

MIN SIZE shows the size, in bytes, of the smallest message sent.

MAX SIZE shows the size of the largest message.

AVG SIZE shows the average size of the messages.

RECV POSTED shows the amount of time that a `recv_nw` is posted on the STP TCP/IP socket by the CONS (i.e., i.e., the CONS is waiting for STP client messages to come in). It does not mean that the CONS could process them if they did arrive, only that the `recv_nw` was posted (see **MAIN WAIT** below).

%POSTED shows the percentage of time that a `recv_nw` is posted on the STP TCP/IP socket by the CONS (should generally be close to 100%).

MAIN WAIT shows the amount of time when a CONS is waiting on the **AWAITIO** to complete for any event (e.g., a message from **COLL**, a timer to complete, an EMS message I/O to complete, an STP message to arrive, etc.). This is an indication that the CONS is waiting for work to do. If high, this means that the CONS is being gated by the arrival of work.

%MWAIT shows the percentage of time that the CONS is waiting on the **AWAITIO** to complete (**MAIN WAIT** divided into the statistics interval).

RECV MWAIT shows the amount of time when a CONS is waiting on the **AWAITIO** to complete and a `recv_nw` is posted on the STP TCP/IP socket by the CONS. This is similar to **MAIN WAIT**, except that this value shows the total time the CONS was specifically (but not exclusively) waiting for a message to arrive on the communications channel.

%RECV MWAIT shows the percentage of time that the CONS is waiting on the **AWAITIO** to complete and a `recv_nw` is posted on the STP TCP/IP socket by the CONS (i.e., i.e., **RECV MWAIT** divided into the statistics interval).

BYTES RCVD shows the total number of application level bytes received using STP mode from a client consumer.

BPS RCVD shows the average number of bytes per second received using STP mode from a client consumer.

STP ERROR RECOVERY INFO – This section displays when replication is configured for automatic recovery. It shows the recovery status of the Consumer, and the current status of the recovery, if any. Error code information will also display when there is a recovery in progress.

STATUS CONS Command

The **STATUS CONS** command displays Consumer status. Syntax:

```
STATUS [/ OUT list_file /] [ CONS ] [<audmon-name>.]{{cons_name}
                                     { * }}
                                     [, DETAIL ]
```

OUT list_file

This directs listing output to a named file. If this option is omitted, listing output is directed to the AUDCOM list file; this is typically the home terminal.

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

cons_name

Is the name of the Consumer.

*

This indicates to include all Consumers.

DETAIL

This displays DBS status information associated with this Consumer.

Optionally, the DETAIL option will cause the Consumer to produce a list of replicated tables/files from the internal selection list. To enable this feature, set the SBCONSREPOUTPUT TACL parameter to 1. See the [HP NonStop Shadowbase Operations Manual](#) for details on the SBCONSREPOUTPUT TACL parameter.

An edit file will be produced in the HP Shadowbase subvolume (or the same subvolume where a CHECKTARGETS log might get produced) listing the sources and targets. The file name will be of the form <consumer process name>REP (e.g., \$DATA1.MYSUBVOL.SBCS1REP). By default, the current file contents will be purged by the Consumer before processing a new STATUS request. You can override this feature by setting the SBCONSREPCLEAN TACL parameter to 0. See the [HP NonStop Shadowbase Operations Manual](#) for details on the SBCONSREPCLEAN TACL parameter.

The Consumer will then append new output to the end of the file.

The following is an example of the output. Note that the target PATHNAME is in parentheses (). It will only be present if a PATHNAME is configured for the related DBS object.

```
SOURCE/TARGET REPORT FILE FOR \S1.$SBCS1 OPENED AT
      <time> :
\S1.$DATA1.MYSUBVOL.TAB1 / \S1.$DATA2.MYSUBVOL.TABT1
      (TARG1)
```

HP NonStop Shadowbase Command Definitions Consumer Command Descriptions

\S1.\$DATA1.MYSUBVOL.TAB2 / \S1.\$DATA2.MYSUBVOL.TABT2
(TARG2)

SOURCE/TARGET REPORT FILE FOR \S1.\$SBCS1 CLOSED AT
<time> :

There are eight possible STATES for the Consumer:

- FAILED All attempts at recovery failed.
- IDLE Consumer added, but not started.
- RECOVERY An automatic recovery is scheduled for this Consumer.
- RUNNING Consumer started and processing has begun.
- STARTED Consumer started via START command, but has not begun processing.
- SUSPUPD The Consumer has received and processed the SUSPENDUPD token that was put into the audit trail, and has stopped processing data. Issue a RESUMEUPD command to resume processing.
- UNKNOWN AUDMON attempted to determine current STATE, but could not because Consumer did not respond within AUDMON's timeout period. Check EMS messages for more information on the STATE of the Consumer.
- WAITING Consumer that listens over TCP/IP is waiting for client side to connect.

The column TRANS BUSY displays the number of concurrent transactions that the CONS has active at the current time. MSGSEQ is the sequence number for the last message received by the CONS from the COLL, QMGR, or SOLV process.

The UNDOMODE indicator signifies the status command was requested during an UNDO processing sequence (v5.001).

The following is an example:

The STATUS CONS command will now show the HP NonStop Shadowbase T-Number, and product version number.

SHADOWBASE - T1122 - V6100J06 - (08AUG14)				
CONS STATUS AT 2014-08-26:09:42:01 :				
AUDMON: \GRAVIC1.\$PAUDM				
CONSNAME	PROCESS	STATE	TRANS BUSY	MSGSEQ
-----	-----	-----	-----	-----
CONS-OPN-PCON1	\GRAVIC1.\$PCON1	RUNNING	0	3
ENTSEQCHKPTFILE	CLOSED			
EMS	CLOSED			
IOTRACEFILE	CLOSED			
KREP PROCESS	CLOSED			
OVFLQFILE	CLOSED			
REJECTFILE	CLOSED			
SBCMDFILENAME	CLOSED			
TIDFILE	CLOSED			

HP NonStop Shadowbase Command Definitions

Consumer Command Descriptions

TMF-TFILE	CLOSED
TRACE	CLOSED
TRACKTXFILE	CLOSED
TRANSLOG	CLOSED
STP (CLIENT)	CONNECTED (P) <-> DOC WRITER SERVER

STOP CONS Command

The STOP CONS command stops a Consumer. Before stopping a Consumer, you should stop its Collector process. If multiple Consumers are configured for a Collector, the restart point will not be accurate if this command is used because the Collector will continue to read and process the audit trails for other Consumers. See the [*HP NonStop Shadowbase Operations Manual*](#) for more information on stopping Consumers. The syntax is:

```
STOP  [ CONS ] [<audmon-name>.] { cons_name }
                                     { * }           [!]
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

cons_name

Is the name of the Consumer.

Indicates stop all Consumers.

!

If the ! (now) option is used, the CONFIRMSHUTDOWN parameter is not considered, and the command is run without additional confirmation.

SUSPEND CONS Command

The SUSPEND CONS command suspends the communication between a Collector and a Consumer. Continuation of the communication is controlled by the RESUME CONS command. A suspended Consumer may eventually cause the related Collector to suspend reading of the audit trail files after its message buffers become full. The Collector will continue to queue messages for this Consumer until that point. You may want to

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Consumer Command Descriptions

suspend a Consumer in order to free up CPU cycles for another process.
The syntax is:

```
SUSPEND [ CONS ] [<audmon-name>.] { coll_name }
                                     { * }
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

cons_name

Is the logical name of the Consumer to be suspended.

*

Indicates suspend all Consumers.

SUSPENDUPD CONS Command

The SUSPENDUPD CONS command suspends audit data processing by entering a specific token into the end of the audit trail; when that event arrives at the target Consumer(s), they stop processing audit trail events until a RESUMEUPD command is entered. The syntax is:

```
SUSPENDUPD { [CONS] { [<audmon-name>.]<consname> }
              { [<audmon-name>.* ] }
              [,SYSCALL { (<TACL command>) }
                      { <filename> } ]
              [,PASSTHRUOPEN [{ (<command>) }
                              { <shell
                                script> } ] ]
            { [CONSGROUP] { [<audmon-name>.]<consgrrouponame> } }
              [,SYSCALL { (<TACL command>) }
                      { <filename> } ]
              [,PASSTHRUOPEN [{ (<command>) }
                              { <shell
                                script> } ] ] }
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

consname

Is the name of the Consumer.

*

This indicates to suspendupd all Consumers.

To support the SUSPENDUPD command, a control file is necessary to place the trigger event in the audit trail. The CONS CONTROLFILE and CONTROLFILEEXT parameters should be set appropriately.

The SYSCALL option accepts either a filename containing TACL commands or a single TACL command within a set of parenthesis (). When a Consumer (or all Consumers specified in the SUSPENDUPD command) enter the SUSPUPD state, AUDMON will execute the SYSCALL file commands or single command string. This is useful command option to synchronize a set of Consumers, and then execute a task or set of tasks when they all have reached the same point in the audit trail processing sequence. If a filename is used, the fully qualified name, containing the node name, subvolume name, and filename is recommended. This will avoid any confusion about where the file resides or which file should be executed should the AUDMON be on a different node.

Note: The IN and OUT files in the SYSCALL must be set to \$NULL unless a command input file and outfile are assigned. Again, it is also very important that NOWAIT be used for any SYSCALL's invoking AUDCOM. Otherwise, AUDMON will block. If this is accidentally done, locate the related running AUDCOM and stop it.

Example with SYSCALL:

```
SUSPENDUPD CONS *,SYSCALL (RUN $DATA1.SB4090.AUDCOM/NOWAIT,  
IN $NULL, OUT $NULL/ $SBMON; SHUTDOWN)
```

PASSTHRUOPEN Generated Events

When PASSTHRUOPEN is specified, the SUSPENDUPD event and associated text is sent down to the target Open systems. If the text contains commas or spaces, it must be enclosed in parenthesis.

Notes: A user exit is required on the open side to intercept the event – otherwise, the target system will try to replicate the event and fail.

By default, the PASSTHRUOPEN feature is disabled – that is, the command event will not be passed through to the target. The

functionality must be enabled by setting the
SBALLOWPASSTHRUOPEN TACL parameter.

When PASSTHRUOPEN is specified, the SUSPENDUPD command and its corresponding RESUMEUPD command are embedded in the event stream as an SQL INSERT event into the SUSPUPD table, which has the following logical structure:

```
CREATE TABLE SUSPUPD (
    TABLE_VERSION          INT          NOT NULL,
    TRANSID                  LARGEINT     NOT NULL,
    NUMBER_THREADS           SMALLINT     NOT NULL,
    TYPE                     X(2)         NOT NULL,
    LAST_SUSPENDUPD_TIME     PIC X(20)    NOT NULL,
    LAST_RESUMEUPD_TIME      PIC X(20)    NOT NULL,
    MAT_SEQNO                INT          NOT NULL,
    MAT_RBA                  LARGEINT     NOT NULL,
    CONSUMER_NAME            char(20)     NOT NULL,
    ORIGINATOR_NAME          char(20)     NOT NULL,
    SYSCALL_COMMAND          char(256)    NOT NULL,
    SYSCALL_COMMAND_LEN      SMALLINT     NOT NULL,
    PRIMARY KEY TRANSID
)
```

The columns are defined as follows:

- TABLE_VERSION: The version of the logical table, currently set to 4092.
- TRANSID: The transaction id the command was issued under. The id is the same for all recipients of this command. This field allows the target side to group all of the suspend or resume events received down the various threads by the “unique” TRANSID number.
- NUMBER_THREADS: The number of HP Shadowbase Other Servers threads the command was issued to.
- TYPE: The type of command – SUSPENDUPD (“SU”) or RESUMEUPD (“RE”).
- LAST_SUSPENDUPD_TIME: The time the last SUSPENDUPD command was issued. The format is YYYYMMDDHHMMSSFFFFFFF.
- LAST_RESUMEUPD_TIME: The time the last RESUMEUPD command was issued. The format is YYYYMMDDHHMMSSFFFFFFF. If no RESUMEUPD command has been issued, will be filled with all 0s.
- MAT_SEQNO: The MAT file sequence number of the command event.
- MAT_RBA: The MAT relative byte address of the command event.
- CONSUMER_NAME: The attached Consumer or QMGR name.
- ORIGINATOR_NAME: The name of the process issuing the command.
- SYSCALL_COMMAND: The text from the PASSTHRU option.
- SYSCALL_COMMAND_LEN: The length of the text from the PASSTHRU option.

SWITCHNET CONS Command

The SWITCHNET CONS command enables the user to switch between primary and backup TCP/IP paths declared with CONS parameters NETBACKUPADDRESS and NETBACKUPPORT. The Consumers and Collectors affected by this command are stopped and restarted. The syntax is:

```
SWITCHNET    [CONS]  [<audmon-name>.] {{<consname>}  
                                     { * }}  
                                     [COLLNAME <collname>]
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

consname

Is the logical name of the Consumer to be switched.

*

Indicates switch all Consumers.

collname

Is the logical name of a previously added Collector.

Database Specification Command Descriptions

Database specification (DBS) commands define the source table(s)/file(s) and associated target table(s)/file(s) that are to be evaluated and processed by the HP Shadowbase system. Commands are available to add and delete specifications, set and modify attributes, and display information. These commands are entered before starting the Collector and Consumer and before the CAPTURE DBS command is issued.

The database specification commands are described below:

ADD DBS Command

The ADD DBS command enters a description of a database specification into the HP Shadowbase configuration. This command is entered after the appropriate SET commands have been issued and before the CAPTURE DBS command. This command can be entered while a Consumer is active. The syntax is:

```
ADD  [ DBS ]  [<audmon-name>.<db_name>]
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

db_name

Is the logical name of the database specification; the name can have from 1 to 16 alphanumeric or hyphen characters. It must start with a letter and must be unique within the HP Shadowbase system.

ALTER DBS Command

The ALTER DBS command changes the attributes of a previously defined database specification. The Consumer must be stopped and the DBS must be released to enter this command.

HP NonStop Shadowbase Command Definitions

Database Specification Command Descriptions

```
ALTER [ DBS ]    [<audmon-name>.<db_name> { , db_parameter }
                                     [ , db_parameter ]...
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

db_name

Is the logical name of a previously defined database specification.

db_parameter

Available parameters can be found in Section 0 - *SET DBS Command*.

If you receive an error during the execution of an ALTER DBS command, do an INFO DBS command to check values.

CAPTURE DBS Command

The CAPTURE DBS command makes the Consumer start evaluating and loading the database specification. It is entered after the ADD DBS commands. The syntax is:

```
CAPTURE  [ DBS ]    [<audmon-name>.] { db_name }
                                     { * }
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

db_name

Is the logical name of a previously defined database specification.

*

This indicates all database specifications.

CHECK DBS Command

The CHECK DBS command is used to initiate the “check targets” verification processing for DBS objects by an AUDMON and the related CONS objects. The command can be run at any time. However, this feature is primarily intended to be used prior to the deployment of a new HP Shadowbase configuration. Depending on the number of disks and files involved, the overhead associated with “check targets” is greater than in the pre-4.090 versions of HP Shadowbase. The syntax is:

```
CHECK  [DBS] { [<audmon-name>.<db> ]<db> }
              [ , {BRIEF          }
                  {FIRSTFOUND}
                  {MSG LINES  } ]
              [ , VERIFYSCHEMA ]
              { [<audmon-name>.*
                  { COLLNAME <collname>      }
                  { CONSNAME <consname>      }
                  { CONSGROUPNAME <consgroupname> } ]
                  [ , {BRIEF          }
                      {FIRSTFOUND}
                      {MSG LINES  } ]
                  [ , VERIFYSCHEMA ]
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

The CHECK command supports the following options:

- A specific DBS object can be checked by entering CHECK DBS <db> <db>.
- All DBS objects can be checked for all COLL/CONS objects for an AUDMON by entering CHECK DBS *.
- All DBS objects can be checked for all CONS objects for a specific COLL object by entering CHECK DBS *, COLLNAME <collname>.
- All DBS objects can be checked for a specific CONS object by entering CHECK DBS *, CONSNAME <consname>.
- All DBS objects can be checked for a set of CONS objects that belong to a Consumer group by entering CHECK DBS *, CONSGROUPNAME <consgroupname>.

By default, “check targets” checks everything except for a schema verification (as that incurs substantial processing overhead), and outputs all of the related detail in the report. The BRIEF, FIRSTFOUND, or MSG LINES option can be used to limit/reduce or otherwise hone what should be checked and reported.

BRIEF – By default, there are two sections of reporting. The detailed part will show the source/target file list and any potential issues associated with the mapping between them. At the end, there is a summary list which shows different categories of issues and other count information about files selected and found, etc. The BRIEF option will only show the summary lines. Note that the CONS still executes the logic to locate sources and targets and performs the checking associated with “check targets”. The amount of detailed output can be much greater than the summary output, which is typically less than a page.

FIRSTFOUND – This option will produce a detail and summary section. However, only the first source file found for a given DBS SOURCEFILE will be reported. This can reduce the “check targets” run time. However, it is possible that some potential issues could go undetected and unreported (e.g., target for a particular source file is missing, more than one logical table/file could be picked up based upon the SOURCEFILE and you only desired a certain table/file and its partitions, etc.). If you use this option, you should also manually check the list of sources and targets that are associated with your DBS object.

MSGLINES – This option will produce a detail and summary section. However, only the first source/target lines that have potential issues are reported. Those that went through the checking without incident are not reported.

“Check targets” can also optionally verify that the data types for common columns (same column name in the source and target) are the same.

VERIFYSCHEMA – This option will cause the CONS to also compare schema data types between a source file/table and related target file/table and report on any different in the “xxxCHK” report.

Note: At this time in almost all cases with NSK-to-NSK replication, that the target data type **MUST** match the source data type. Different data types can cause the Consumer to trap. In some cases, this can occur within the HP SQL executor code without any EMS messages to indicate that the data is incorrect.

It is a good idea to use the VERIFYSCHEMA option on the CHECK command for new DBS objects in order to verify compatibility between a source file and target file. Note that, even if a user exit is associated with a DBS object, the report will show data type differences with a note that there is a user exit.

HP NonStop Shadowbase Command Definitions Database Specification Command Descriptions

The following are several “check targets” report examples. Take note that there is information pertaining to the command that was used to generate the report.

Example 1 – A CHECK DBS *, VERIFYSHEMA command was used.
There were no discrepancies found. Take notice of the detail and summary sections.

```
*****
CHECKTARGETS LOG OPENED BY AUDMON \S1.$GESM1 AT 2010-02-05:10:55:01 :

[[[ NOTE: ALL 3 DBS INCLUDE AND EXCLUDE OBJECTS HAVE BEEN CAPTURED FOR CONS CONS01 ]]]

CHECKTARGETS LOG CLOSED BY AUDMON \S1.$GESM1 AT 2010-02-05:10:55:02 :

CHECKTARGETS LOG \S1.$GES.T4090.GSCS1CHK OPENED BY CONS CONS01(\S1.$GSCS1) FOR 'CHECK DBS *, VERIFYSHEMA' USER REQUEST AT 2010-02-05:10:55:02 :

HEADING LEGEND: MAPFRSRC=MAPFROMSOURCE, MAPTOTPL=MAPTOTEMPLATE, INS=INSERTS, UPD=UPDATES, DEL=DELETES, ALT=ALTERS, PRG=PURGES, PGD=PURGEDATAS,
INF=INSERTNOTFOUND, UDP=UPDATEDUPLICATE, USRXID=USEREXITID

DBS INCLUDE      SOURCEFILE/TARGETFILE/DDL      MAPTOFILE/PATHNAME      MAPFRSRC MAPTOTPL INS UPD DEL ALT CRT PRG PGD INF UDP USRXID
-----
DBS-1             \S1.$DATA5.GESDEV.KEYTABL      NONE                     OFF      OFF      ON  ON  ON  OFF OFF OFF OFF OFF OFF  NONE
                \S1.$DATA5.GESDEVTG.KEYTABL      NONE
SRC/TRG: \S1.$DATA7.GESDEV.KEYTABL TO \S1.$DATA5.GESDEVTG.KEYTABL -> SQL-TO-SQL
          \S1.$DATA5.GESDEV.KEYTABL TO \S1.$DATA5.GESDEVTG.KEYTABL -> SQL-TO-SQL
          \S1.$DATA4.GESDEV.KEYTABL TO \S1.$DATA5.GESDEVTG.KEYTABL -> SQL-TO-SQL
          \S1.$DATA3.GESDEV.KEYTABL TO \S1.$DATA5.GESDEVTG.KEYTABL -> SQL-TO-SQL
          \S1.$DATA2.GESDEV.KEYTABL TO \S1.$DATA5.GESDEVTG.KEYTABL -> SQL-TO-SQL
          \S1.$DATA1.GESDEV.KEYTABL TO \S1.$DATA5.GESDEVTG.KEYTABL -> SQL-TO-SQL
          \S1.$DATA02.GESDEV.KEYTABL TO \S1.$DATA5.GESDEVTG.KEYTABL -> SQL-TO-SQL

DBS-RELTABL       \S1.$DATA5.GESDEV.RELTABL      NONE                     OFF      OFF      ON  ON  ON  OFF OFF OFF OFF OFF OFF  NONE
                \S1.$DATA5.GESDEVTG.RELTABL      NONE
SRC/TRG: \S1.$DATA5.GESDEV.RELTABL TO \S1.$DATA5.GESDEVTG.RELTABL -> SQL-TO-SQL

DBS-2             \S1.$DATA5.GESDEV.KEYFILE1     NONE                     OFF      OFF      ON  ON  ON  OFF OFF OFF OFF OFF OFF  NONE
                \S1.$DATA5.GESDEVTG.KEYFILE1     NONE
                SOURCEIDCT=\S1.$DATA5.GESDEV, SOURCEREC=KEYREC1 / TARGETDICT=\S1.$DATA5.GESDEV, TARGETREC=KEYREC1
SRC/TRG: \S1.$DATA5.GESDEV.KEYFILE1 TO \S1.$DATA5.GESDEVTG.KEYFILE1 -> ENS-TO-ENS

CONS CHECKTARGETS SUMMARY:
  NUMBER OF CAPTURED DBS INCLUDE OBJECTS: 3
  NUMBER OF CAPTURED DBS INCLUDE OBJECTS YIELDING NO SRC'S: 0
  NUMBER OF SRC'S FOUND: 9
  NUMBER OF SRC'S/TRG'S WITHOUT NOTES AND MESSAGES: 9
  NUMBER OF SRC'S/TRG'S NEEDING DETAIL REVIEW: 0
  NUMBER OF TRG'S FOR SRC'S FOUND: 9
  NUMBER OF MISSING TRG'S: 0
  NUMBER OF ENS-TO-ENS: 1
  NUMBER OF ENS-TO-SQL: 0
  NUMBER OF SQL-TO-SQL: 8
  NUMBER OF SQL-TO-ENS: 0
  NUMBER OF DBS'S WITH SRC DDL SPECIFIED: 1
  NUMBER OF DBS'S WITH TRG DDL SPECIFIED: 1
  NUMBER OF SRC'S SKIPPED (DO NOT MATCH DBS SOURCETYPE): 0
  NUMBER OF SRC'S SKIPPED (MATCHES EXCLUDE DBS OBJECT): 0
  NUMBER OF SRC'S/TRG'S WITH COLUMN DATA TYPE MISMATCHS (NO USER EXIT): 0
  NUMBER OF SRC'S/TRG'S WITH COLUMN DATA TYPE MISMATCHS (WITH A USER EXIT): 0

CHECKTARGETS LOG \S1.$GES.T4090.GSCS1CHK CLOSED BY CONS CONS01(\S1.$GSCS1) AT 2010-02-05:10:55:02 :
*****
```

Example 2 – A CHECK DBS *, BRIEF, VERIFYSHEMA command was used.
There were no discrepancies found. Take notice that only a summary section is included.

```
*****
CHECKTARGETS LOG OPENED BY AUDMON \S1.$GESM1 AT 2010-02-05:11:10:00 :

[[[ NOTE: ALL 3 DBS INCLUDE AND EXCLUDE OBJECTS HAVE BEEN CAPTURED FOR CONS CONS01 ]]]

CHECKTARGETS LOG CLOSED BY AUDMON \S1.$GESM1 AT 2010-02-05:11:10:01 :

CHECKTARGETS LOG \S1.$GES.T4090.GSCS1CHK OPENED BY CONS CONS01(\S1.$GSCS1) FOR 'CHECK DBS *, BRIEF, VERIFYSHEMA' USER REQUEST AT 2010-02-05:11:10:01 :

HEADING LEGEND: MAPFRSRC=MAPFROMSOURCE, MAPTOTPL=MAPTOTEMPLATE, INS=INSERTS, UPD=UPDATES, DEL=DELETES, ALT=ALTERS, PRG=PURGES, PGD=PURGEDATAS,
INF=INSERTNOTFOUND, UDP=UPDATEDUPLICATE, USRXID=USEREXITID

CONS CHECKTARGETS SUMMARY:
  NUMBER OF CAPTURED DBS INCLUDE OBJECTS: 3
  NUMBER OF CAPTURED DBS INCLUDE OBJECTS YIELDING NO SRC'S: 0
  NUMBER OF SRC'S FOUND: 9
  NUMBER OF SRC'S/TRG'S WITHOUT NOTES AND MESSAGES: 9
  NUMBER OF SRC'S/TRG'S NEEDING DETAIL REVIEW: 0
  NUMBER OF TRG'S FOR SRC'S FOUND: 9
  NUMBER OF MISSING TRG'S: 0
  NUMBER OF ENS-TO-ENS: 1
  NUMBER OF ENS-TO-SQL: 0
  NUMBER OF SQL-TO-SQL: 8
  NUMBER OF SQL-TO-ENS: 0
  NUMBER OF SRC'S SKIPPED (DO NOT MATCH DBS SOURCETYPE): 0
  NUMBER OF SRC'S SKIPPED (MATCHES EXCLUDE DBS OBJECT): 0
  NUMBER OF SRC'S/TRG'S WITH COLUMN DATA TYPE MISMATCHS (NO USER EXIT): 0
  NUMBER OF SRC'S/TRG'S WITH COLUMN DATA TYPE MISMATCHS (WITH A USER EXIT): 0

CHECKTARGETS LOG \S1.$GES.T4090.GSCS1CHK CLOSED BY CONS CONS01(\S1.$GSCS1) AT 2010-02-05:11:10:01 :
*****
```

HP NonStop Shadowbase Command Definitions Database Specification Command Descriptions

Example 3 – A CHECK DBS *, VERIFYSHEMA command was used. A number of discrepancies are reported. Take note of the *'s used to highlight the items needing special attention. Also note the item reporting that a DBS object was not captured.

```
*****
CHECKTARGETS LOG OPENED BY AUDMON \s1.$GESM1 AT 2010-02-05:13:10:32 :

*** DBS INCLUDE OBJECT DBS-6 IS NOT CAPTURED FOR CONS CONS01.  POTENTIAL FOR TARGET DATA LOSS. ***

CHECKTARGETS LOG CLOSED BY AUDMON \s1.$GESM1 AT 2010-02-05:13:10:32 :

CHECKTARGETS LOG \s1.$GES.T4090.GSCS1CHK OPENED BY CONS CONS01(\s1.$GSCS1) FOR 'CHECK DBS *, VERIFYSHEMA' USER REQUEST AT 2010-02-05:13:10:32 :

HEADING LEGEND: MAPFBSRC=MAPFROMSOURCE, MAPTOTPL=MAPTOTEMPLATE, INS=INSERTS, UPD=UPDATES, DEL=DELETES, ALT=ALTERS, PRG=PURGES, PGD=PURGEDATAS,
INF=INSERTNOTFOUND, UDP=UPDATEDUPLICATE, USRXID=USEREXITID

DBS INCLUDE      SOURCEFILE/TARGETFILE/DDL      MAPTOFILE/PATHNAME      MAPFBSRC MAPTOTPL INS UPD DEL ALT CRT PRG PGD INF UDP USRXID
-----
DBS-1             \s1.$DATA*.GESDEV.KEYTABL      NONE                     OFF      OFF      ON  ON  ON  OFF OFF OFF OFF OFF OFF  NONE
                \s1.$DATA5.GESDEVTG.KEYTABL      NONE
SRC/TRG: \s1.$DATA7.GESDEV.KEYTABL TO \s1.$DATA5.GESDEVTG.KEYTABL -> SQL-TO-SQL
        \s1.$DATA5.GESDEV.KEYTABL TO \s1.$DATA5.GESDEVTG.KEYTABL -> SQL-TO-SQL
        \s1.$DATA4.GESDEV.KEYTABL TO \s1.$DATA5.GESDEVTG.KEYTABL -> SQL-TO-SQL
        \s1.$DATA3.GESDEV.KEYTABL TO \s1.$DATA5.GESDEVTG.KEYTABL -> SQL-TO-SQL
        \s1.$DATA2.GESDEV.KEYTABL TO \s1.$DATA5.GESDEVTG.KEYTABL -> SQL-TO-SQL
        \s1.$DATA1.GESDEV.KEYTABL TO \s1.$DATA5.GESDEVTG.KEYTABL -> SQL-TO-SQL
        \s1.$DATA02.GESDEV.KEYTABL TO \s1.$DATA5.GESDEVTG.KEYTABL -> SQL-TO-SQL

DBS-2             \s1.$DATA5.GESDEV.RELTABL      NONE                     OFF      OFF      ON  ON  ON  OFF OFF OFF OFF OFF OFF  NONE
                \s1.$DATA5.GESDEVTG.RELTABL      NONE
*SRC/TRG: \s1.$DATA5.GESDEV.RELTABL TO \s1.$DATA5.GESDEVTG.RELTABL -> SQL-TO-SQL *** SRC IS NOT AUDITED ***

DBS-3             \s1.$DATA*.GESDEV.KEYFILE      NONE                     OFF      OFF      ON  ON  ON  OFF OFF OFF OFF OFF OFF  NONE
                \s1.$DATA5.GESDEVTG.KEYFILE      NONE
SRC/TRG: \s1.$DATA5.GESDEV.KEYFILE TO \s1.$DATA5.GESDEVTG.KEYFILE -> ENS-TO-ENS
        SOURCECINCT=\s1.$DATA5.GESDEV, SOURCECERC=KEYREC1 / TARGETDICT=\s1.$DATA5.GESDEV, TARGETREC=KEYREC1

DBS-4             \s1.$DATA5.GESDEV.JULFILE      NONE                     OFF      OFF      ON  ON  ON  OFF OFF OFF OFF OFF OFF  NONE
                \s1.$DATA5.GESDEVTG.JULFILE      NONE
*SRC/TRG: \s1.$DATA5.GESDEV.JULFILE TO \s1.$DATA5.GESDEVTG.JULFILE -> ENS-TO-ENS *** TARGET COLUMN F01 DATATYPE IS DIFFERENT THAN SOURCE ***
        SOURCECINCT=\s1.$DATA5.GESDEV, SOURCECERC=JULREC / TARGETDICT=\s1.$DATA5.GESDEV, TARGETREC=JULRECT
        *** TARGET COLUMN F03 DATATYPE IS DIFFERENT THAN SOURCE ***

DBS-5             \s1.$DATA5.GESDEV.KEYFILE3      NONE                     OFF      OFF      ON  ON  ON  OFF OFF OFF OFF OFF OFF  NONE
                \s1.$DATA5.GESDEVTG.KEYFILE3      NONE
        SOURCECINCT=\s1.$DATA5.GESDEV, SOURCECERC=JULREC / TARGETDICT=\s1.$DATA5.GESDEV, TARGETREC=JULRECT
*SRC/TRG: \s1.$DATA5.GESDEV.KEYFILE3 TO \s1.$DATA5.GESDEVTG.KEYFILE3 -> ENS-TO-ENS *** TARGET COLUMN F01 DATATYPE IS DIFFERENT THAN SOURCE ***
        *** TARGET COLUMN F03 DATATYPE IS DIFFERENT THAN SOURCE ***

CONS CHECKTARGETS SUMMARY:
  NUMBER OF CAPTURED DBS INCLUDE OBJECTS: 5
  NUMBER OF CAPTURED DBS INCLUDE OBJECTS YIELDING NO SRC'S: 0
  NUMBER OF SRC'S FOUND: 11
  NUMBER OF SRC'S/TRG'S WITHOUT NOTES AND MESSAGES: 8
  * NUMBER OF SRC'S/TRG'S NEEDING DETAIL REVIEW: 3
  NUMBER OF TRG'S FOR SRC'S FOUND: 11
  NUMBER OF MISSING TRG'S: 0
  NUMBER OF ENS-TO-ENS: 3
  NUMBER OF ENS-TO-SQL: 0
  NUMBER OF SQL-TO-SQL: 8
  NUMBER OF SQL-TO-ENS: 0
  NUMBER OF DBS'S WITH SRC DDL SPECIFIED: 3
  NUMBER OF DBS'S WITH TRG DDL SPECIFIED: 3
  NUMBER OF SRC'S SKIPPED (DO NOT MATCH DBS SOURCETYPE): 0
  NUMBER OF SRC'S SKIPPED (MATCHES EXCLUDE DBS OBJECT): 0
  * NUMBER OF SRC'S NOT AUDITED: 1
  * NUMBER OF SRC'S/TRG'S WITH COLUMN DATA TYPE MISMATCHS (NO USER EXIT): 2
  NUMBER OF SRC'S/TRG'S WITH COLUMN DATA TYPE MISMATCHS (WITH A USER EXIT): 0

CHECKTARGETS LOG \s1.$GES.T4090.GSCS1CHK CLOSED BY CONS CONS01(\s1.$GSCS1) AT 2010-02-05:13:10:32 :
*****
```

Example 4 – This example is the same as example 3 but using the BRIEF option.

```
*****
CHECKTARGETS LOG OPENED BY AUDMON \s1.$GESM1 AT 2010-02-05:13:14:33 :

*** DBS INCLUDE OBJECT DBS-6 IS NOT CAPTURED FOR CONS CONS01.  POTENTIAL FOR TARGET DATA LOSS. ***

CHECKTARGETS LOG CLOSED BY AUDMON \s1.$GESM1 AT 2010-02-05:13:14:33 :

CHECKTARGETS LOG \s1.$GES.T4090.GSCS1CHK OPENED BY CONS CONS01(\s1.$GSCS1) FOR 'CHECK DBS *, BRIEF, VERIFYSHEMA' USER REQUEST AT 2010-02-05:13:14:33 :

HEADING LEGEND: MAPFBSRC=MAPFROMSOURCE, MAPTOTPL=MAPTOTEMPLATE, INS=INSERTS, UPD=UPDATES, DEL=DELETES, ALT=ALTERS, PRG=PURGES, PGD=PURGEDATAS,
INF=INSERTNOTFOUND, UDP=UPDATEDUPLICATE, USRXID=USEREXITID

CONS CHECKTARGETS SUMMARY:
  NUMBER OF CAPTURED DBS INCLUDE OBJECTS: 5
  NUMBER OF CAPTURED DBS INCLUDE OBJECTS YIELDING NO SRC'S: 0
  NUMBER OF SRC'S FOUND: 11
  NUMBER OF SRC'S/TRG'S WITHOUT NOTES AND MESSAGES: 8
  * NUMBER OF SRC'S/TRG'S NEEDING DETAIL REVIEW: 3
  NUMBER OF TRG'S FOR SRC'S FOUND: 11
  NUMBER OF MISSING TRG'S: 0
  NUMBER OF ENS-TO-ENS: 3
  NUMBER OF ENS-TO-SQL: 0
  NUMBER OF SQL-TO-SQL: 8
  NUMBER OF SQL-TO-ENS: 0
  NUMBER OF DBS'S WITH SRC DDL SPECIFIED: 3
  NUMBER OF DBS'S WITH TRG DDL SPECIFIED: 3
  NUMBER OF SRC'S SKIPPED (DO NOT MATCH DBS SOURCETYPE): 0
  NUMBER OF SRC'S SKIPPED (MATCHES EXCLUDE DBS OBJECT): 0
  * NUMBER OF SRC'S NOT AUDITED: 1
  * NUMBER OF SRC'S/TRG'S WITH COLUMN DATA TYPE MISMATCHS (NO USER EXIT): 2
  NUMBER OF SRC'S/TRG'S WITH COLUMN DATA TYPE MISMATCHS (WITH A USER EXIT): 0

CHECKTARGETS LOG \s1.$GES.T4090.GSCS1CHK CLOSED BY CONS CONS01(\s1.$GSCS1) AT 2010-02-05:13:14:33 :
*****
```

DELETE DBS Command

The DELETE DBS command removes a database specification from the HP Shadowbase system. In order to DELETE a DBS you must first stop the Consumer and RELEASE the DBS. The syntax is:

```
DELETE [ DBS ] [ <audmon-name>.<db_name>
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

db_name

Is the logical name of the database specification to be deleted.

ESTATS DBS Command

The ESTATS DBS command allows for the display of the CONS extended statistics by DBS. It also displays the information in a simple format by default. The command syntax for ESTATS DBS is as follows:

```
ESTATS [/out <listfile>] {[DBS] {<db_name> | *}  
                        [{,FILESTATS}  
                        {,DBSSTATS}  
                        {,ALL} ]  
                        [,CONSNAME <cons-name>]  
                        [,COLLNAME <coll-name>]  
                        [,MATRIX]}
```

If the name of a particular DBS is specified, only statistics for events matching that DBS will be displayed. If * is specified, statistics for events matching any DBS will be displayed.

FILESTATS, DBSSTATS, and ALL options – If the FILESTATS option is specified, the statistics are displayed at the file level. If the DBSSTATS option is specified, the statistics are displayed at the DBS level. The all option displays the statistics in both formats. If multiple options are specified, the last option entered is used. The default is ALL.

CONSNAME – The CONSNAME option allows for displaying only DBSs for a particular CONS.

COLLNAME – The COLLNAME option allows for displaying only statistics for DBSs of CONS fed from the specified COLL.

MATRIX – If the MATRIX option is specified, the statistics are output in the more detailed matrix format used by the STATS AUD, DETAIL and ESTATS AUD commands for the CONS FILE STATS and CONS DBS STATS sections. By default, the new simpler format is used.

In order to display statistics at the file level for all DBSs for the CONS object CON1, for example, the following command would be used:

```
ESTATS DBS *, FILESTATS, CONSNAME CON1
```

An example of the format of the output of the ESTATS DBS command with the ALL option (the default) is shown here:

```
+ESTATS DBS *
ESTATS DBS AT 02-04 14:50:10

=====
-----DBS STATS-----
SYSTEM: \H2
  COLL JZCL2
    CONS JZCN2
      DBS: PPDF4DDLDBS
        EVENT TYPE      DO      UNDO  TRANSFORMED      IGNORED
        -----
        INSERT           2          0          0          0
        UPDATE           0          0          0          0
        U->I INSERT       0          0          0          0
        I->U UPDATE       0          0          0          0
        DELETE           0          0          0          0
        CREATE           0          0          0          0
        ALTER            0          0          0          0
        PURGE            0          0          0          0
        PURGEDATA        0          0          0          0
        TOTALS           2          0          0          0
        -----
-----FILE STATS-----
SYSTEM: \H2
  COLL JZCL2
    CONS JZCN2
      DBS: PPDF4DDLDBS
      SOURCE: \H2.$JMZ.TFMNTTGT.SQLTABL2      LEV: 02-04 14:25:42.452
      TARGET: \H2.$JMZ.TFMNTTGT.SQLTABL2      LIO: 02-04 14:25:43.468
        EVENT TYPE      DO      UNDO  TRANSFORMED      IGNORED
        -----
        INSERT           2          0          0          0
        UPDATE           0          0          0          0
        U->I INSERT       0          0          0          0
        I->U UPDATE       0          0          0          0
        DELETE           0          0          0          0
        CREATE           0          0          0          0
        ALTER            0          0          0          0
        PURGE            0          0          0          0
        PURGEDATA        0          0          0          0
        TOTALS           2          0          0          0
        -----
=====
```


DBS STATS is the section of statistics displayed for each DBS.

FILE STATS is the section of statistics displayed on a file by file basis.

The following is an explanation of the columns and rows in the ESTATS DBS output (as long as the MATRIX option is not specified, see the documentation of the STATS AUD, DETAIL command for information on that output style):

EVENT TYPE is the type of event listed for that row. The listed event type is the type of the SOURCE event, except as discussed here. Update source events that are applied as insert events to the target (such as in the case of INSERTNOTFOUND) will be counted in the U->I INSERT row of the table, and not in the UPDATE row. Similarly, insert source events that are applied to the target as update events (such as in the case of UPDATEDUPLICATE) will be counted in the I->U UPDATE row, and not in the INSERT row.

DO is the count of events of each type that were DO events.

UNDO is the count of events of each type that were UNDO (TMF backout) events.

TRANSFORMED is the count of events of each type that were transformed to a different type of event when applied to the target (e.g., an insert that was mapped into an update due to a duplicate key error).

IGNORED is the count of events of each type that were ignored at the target side.

INFO DBS Command

The INFO DBS command displays the current values for the attributes of a database specification. The syntax is:

```
INFO [/OUT list_file/] [DBS] {CONSNAME [<audmon-name>.]cons_name}  
                                { [<audmon-name>.]<db_name> }  
                                { * }
```

OUT list_file

HP NonStop Shadowbase Command Definitions

Database Specification Command Descriptions

This directs listing output to a named file. If this option is omitted, listing output is directed to the AUDCOM list file; this is typically the home terminal.

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment is used.

CONSNAME cons_name

Is the logical name of a previously defined Consumer. In this form, all DBSs for the specified Consumer are displayed.

dbs_name

Is the logical name of a previously defined database specification.

*

This displays the current values for the attributes for all database specifications in the HP Shadowbase system.

An example of the results of doing an INFO DBS command is shown below:

```
DBS DBS01 OBJECT SETTINGS (AUDMON \H2.$AUDM) :
  ABENDONMISMATCH OFF
  ACTIVETARGET OFF
  ALLOWQUEUEFILE OFF
  ALLPARTITIONS OFF
  ALLUPDATES ON
  ALTEROPTIONS ([NOCLOSETABLES, COORDINATION])
  ALTERS ON
  AUDITDELETES OFF
  BASE24HANDLERID 0
  BEFOREVALUES OFF
  COLLISIONHANDLER 0
  CONSNAME KUCN1
  CONTROLTABLEEXT ?
  CONTROLTABLEEXT1 ?
  CONTROLTABLEEXT2 ?
  CONTROLTABLEEXT3 ?
  CONTROLTABLELOCK ON
  CREATES ON
  CREATEOPTIONS (RECREATEALTFILES, PARTITIONS, ALTFILEMAPPING [, NOCLOSETABLES,
COORDINATION])
  DELETES OFF
  DELUIDXDUP OFF
  DOIFNOAUDATSTART CONTINUE
  DOIFNOSRCATRUN WARN1ST
  DOIFNOSRCATSTART CONTINUE
  DOIFNOTRGATRUN WARN1ST
  DOIFNOTRGATSTART CONTINUE
  DTSEPARATORVAL " "
  DTSOURCEFORMAT OFF
  ENTRYSEQEXACT (OFF)
  EXTENDINSERT OFF
  EXTENDUPDATE OFF
  FETCHSOURCE (OFF)
  FILEDDLDELAY ?
  FILEDDLRETRIES 3
```

HP NonStop Shadowbase Command Definitions

Database Specification Command Descriptions

```

FIXUPDECIMAL ABEND
HADWLOGEVENTS OFF
HADWLOGREJECT OFF
HADWLOGSAME OFF
HADWSKIPSAME OFF
IGNOREDDLERROR ( ? )
IGNOREERROR ( ? )
INCLUDESBDATA OFF
INSERTNOTFOUND OFF
INSERTS ON
KEEPLONGERRECORD OFF
KEEPOPEN OFF
KEYSPECIFIER ?
LOGREJECTIGNORE OFF
LOGREJECTSTOP OFF
MAPFROMSOURCE OFF
MAPTOFILE \S1.$DATA.ENS.ENSFILE
MAPTOTEMPLATE OFF
MAXRETRIES -1
MXPARTNAMES ?
MXPATHNAME ?
MXSOURCETABLE ?
MXTARGETTABLE ?
ORDERCOLSFORDEL OFF
PATHNAME ?
PULSEFILE OFF
PULSEFILEPURGE OFF
PURGEDATAS OFF
PURGEDATAOPTIONS (PURGEDATAALTFILES, ALLPARTS [, NOCLOSETABLES, COORDINATION,
NOMAPTOPRIPTN])
PURGEIFEXISTS OFF
PURGEOPTIONS (PURGEALTFILES, ALLPARTS [, NOCLOSETABLES, COORDINATION])
PURGES ON
RETRYDDLERROR ( ? )
RETRYDELAY ?
RETRYERROR ( ? )
RETRYFILEIOERROR OFF
ROOTPARTITION ?
SBCMDFILE OFF
SCREENTRANS OFF
SBDATAPREFIX ?
SKIPALLKEYUPDATE OFF
SKIPFATALDDLERR ON
SKIPFATALIOERR OFF
SOLVMGRNAME ?
SOURCECAT ?
SOURCECIC ?
SOURCEFILE \H2.$DATA.ENS.ENSFILE
SOURCEFILEEXTENT ( 100, 100, 160 )
SOURCEREC ?
SOURCETYPE SQLTAB
SPECTYPE INCLUDE
STOPDDLERROR ( ? )
STOPERROR ( ? )
TARGETCAT ?
TARGETCIC ?
TARGETFILE ?
TARGETFILEEXTENT ( 100, 100, 160 )
TARGETREC ?
TRACKTX ON
UPDATEDUPLICATE ON
UPDATES ON
USEREXITID 0
USEREXITPREREAD OFF
USEREXITPREREADI OFF
USERGETSINORDER OFF
USERTRACE OFF
VERIFYSHEMA ON
VIEWNAME ?

```

OBEYFORM DBS Command

The OBEYFORM DBS command displays the parameter values in the SET command format for the DBS object. The syntax is:

```
OBEYFORM [/OUT<listfile>/] [DBS] {CONSNAME [<audmon-name>.<consname>}  
                                         { [<audmon-name>.<dblname> } }
```

listfile

Is the name of a file to receive the output. listfile can be an edit file that can subsequently be edited for use.

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

consname

Is the logical name of a previously defined Consumer.

dblname

Is the logical name of a previously defined database specification.

Note: Parameters that do not have values set are commented out.

An example of the results of doing an OBEYFORM DBS command is shown below:

```
[DBS DBS-01 OBJECT SETTINGS (AUDMON \H2.$AUDM):]  
  RESET DBS  
  SET DBS ABENDONMISMATCH OFF  
  SET DBS ACTIVETARGET OFF  
  SET DBS ALLOWQUEUEFILE OFF  
  SET DBS ALLPARTITIONS OFF  
  SET DBS ALLUPDATES ON  
[SET DBS ALTEROPTIONS NONE]  
  SET DBS ALTERS ON  
  SET DBS AUDITDELETES OFF  
  SET DBS BASE24HANDLERID 0  
  SET DBS BEFOREVALUES OFF  
  SET DBS COLLISIONHANDLER 0  
  SET DBS CONSNAME CONS-01  
[SET DBS CONTROLTABLEEXT ?]  
[SET DBS CONTROLTABLEEXT1 ?]  
[SET DBS CONTROLTABLEEXT2 ?]  
[SET DBS CONTROLTABLEEXT3 ?]  
  SET DBS CONTROLTABLELOCK ON  
  SET DBS CREATES ON  
  SET DBS CREATEOPTIONS (RECREATEALTFILES, PARTITIONS, ALTFILEMAPPING [,  
NOCLOSETABLES, COORDINATION])  
  SET DBS DELETES OFF  
  SET DBS DELUIDXDUP OFF  
  SET DBS DOIFNOAUDATSTART CONTINUE
```

HP NonStop Shadowbase Command Definitions

Database Specification Command Descriptions

```

SET DBS DOIFNOSRCATRUN WARN1ST
SET DBS DOIFNOSRCATSTART CONTINUE
SET DBS DOIFNOTRGATRUN WARN1ST
SET DBS DOIFNOTRGATSTART CONTINUE
SET DBS DTSEPARATORVAL " "
SET DBS DTSOURCEFORMAT OFF
SET DBS ENTRYSEQEXACT (OFF)
SET DBS EXTENDINSERT OFF
SET DBS EXTENDUPDATE OFF
SET DBS FETCHSOURCE OFF
[SET DBS FILEDDLDELAY ?]
SET DBS FILEDDLRETRIES 3
SET DBS FIXUPDECIMAL ABEND
SET DBS HADWLOGEVENTS OFF
SET DBS HADWLOGREJECT OFF
SET DBS HADWLOGSAME OFF
SET DBS HADWSKIPSAME OFF
[SET DBS IGNOREDDLERROR ( ? )]
[SET DBS IGNOREERROR ( ? )]
SET DBS INCLUDESBDATA OFF
SET DBS INSERTNOTFOUND OFF
SET DBS INSERTS ON
SET DBS KEEPLONGERRECORD OFF
SET DBS KEEPOPEN OFF
[SET DBS KEYSPECIFIER ?]
SET DBS LOGREJECTIGNORE OFF
SET DBS LOGREJECTSTOP OFF
SET DBS MAPFROMSOURCE OFF
SET DBS MAPTOFILE \S1.$DATA.ENS.ENSFILE
SET DBS MAPTOTEMPLATE OFF
SET DBS MAXRETRIES -1
SET DBS MXPARTNAMES ?
SET DBS MXPATHNAME ?
SET DBS MXSOURCETABLE ?
SET DBS MXTARGETTABLE ?
[SET DBS PATHNAME ?]
SET DBS PULSEFILE OFF
SET DBS PULSEFILEPURGE OFF
SET DBS PURGEDATAS OFF
SET DBS PURGEDATAOPTIONS (PURGEDATAALTFILES, ALLPARTS [,
NOCLOSETABLES, COORDINATION, NOMAPTOPRIPTN])
SET DBS PURGEIFEXISTS OFF
SET DBS PURGEOPTIONS (PURGEALTFILES, ALLPARTS [, NOCLOSETABLES,
COORDINATION])
SET DBS PURGES ON
[SET DBS RETRYDDLERROR ( ? )]
[SET DBS RETRYDELAY ?]
[SET DBS RETRYERROR ( ? )]
SET DBS RETRYFILEIOERROR OFF
[SET DBS ROOTPARTITION ?]
SET DBS SBCMDFILE OFF
SET DBS SCREENTRANS OFF
SET DBS SKIPALLKEYUPDATE OFF
SET DBS SKIPFATALDDLERR ON
SET DBS SKIPFATALIOERR OFF
[SET DBS SOLVMGRNAME ?]
[SET DBS SOURCECAT ?]
[SET DBS SOURCEDICT ?]
SET DBS SOURCEFILE \H2.$DATA.ENS.ENSFILE
SET DBS SOURCEFILEEXTENT ( 100, 100, 160 )
[SET DBS SOURCEREC ?]
SET DBS SOURCETYPE SQLTAB
SET DBS SPECTYPE INCLUDE

```

HP NonStop Shadowbase Command Definitions

Database Specification Command Descriptions

```
[SET DBS STOPDDLERROR ( ? )]  
[SET DBS STOPERROR ( ? )]  
[SET DBS TARGETCAT ?]  
[SET DBS TARGETDICT ?]  
SET DBS TARGETFILE ?  
SET DBS TARGETFILEEXTENT ( 100, 100, 160 )  
[SET DBS TARGETREC ?]  
SET DBS TRACKTX ON  
SET DBS UPDATEDUPLICATE ON  
SET DBS UPDATES ON  
SET DBS USEREXITID 0  
SET DBS USEREXITPREREAD OFF  
SET DBS USEREXITPREREADI OFF  
SET DBS USERGETSINORDER OFF  
SET DBS USERTRACE OFF  
SET DBS VERIFYSHEMA ON  
ADD DBS DBS-01
```

RELEASE DBS Command

The RELEASE DBS stops the evaluation process for a database specification. It undoes a CAPTURE DBS command. It can be entered while the Consumer is active. The syntax is:

```
RELEASE  [ DBS ]  [<audmon-name>.] { dbs_name }  
                                     { * }
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

dbs_name

Is the logical name of a previously defined database specification.

*

This indicates all database specifications.

RESET DBS Command

The RESET DBS command resets a database specification parameter from the currently set value to the default system value. The syntax is:

HP NonStop Shadowbase Command Definitions

Database Specification Command Descriptions

```
RESET [ DBS ] [ dbs_parameter [ , dbs_parameter ] ... ]
```

dbs_parameter options can be found if the SET DBS section.

If dbs_parameter is omitted, values for all parameters are reset.

SET DBS Command

The SET DBS command establishes values for the attributes of a database specification.

In each description, there is a version box. This box contains information, as in the samples below.

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
3.960		OFF	OFF	ON	No

Initial Version	Changed Version	Values Default	Value Specifications	Alter
3.900	3.964B	None	Valid target file name Include NODE	No

To know if your version of HP Shadowbase can use the parameter, the first column titled 'Initial Version', is for when the parameter was first introduced. The next column is for if and when the parameter was last changed. If the parameter has a last changed version then the values in the columns following, are as of that version. The next column provides the default value. Next is provided, either the minimum to maximum values, or the listed value specifications. The value in the last column, titled 'Alter', is set to 'No' as these parameters cannot be altered once AUDCONS has been started. The Consumer must be stopped or the DBS must be released to change the value of these parameters.

The syntax is:

```
SET [ DBS ] dbs_parameter [ , dbs_parameter ] ...
```

dbs_parameter options are described below:

ABENDONMISMATCH

Initial	Changed
---------	---------

Version	Version	Values Default	Minimum	Maximum	Alter
3.960		OFF	OFF	ON	No

The parameter ABENDONMISMATCH was added to perform a series of checks and tests for those sites that are performing like-to-like replication (e.g., a disaster recovery scenario). The default value is OFF. This parameter can be used when AUDITCOMPRESS is on for the source file or table.

When set to ON for Enscribe files, the Consumer will abend with an appropriate EMS message if an audit trail event record length is not equal to the record length defined for the TARGETFILE. This means that you must not be using variable length records for this file when you use this parameter.

When set to ON for an SQL table, the Consumer will abend with an appropriate EMS message if the SOURCEFILE and TARGETFILE schemas don't match (with some restrictions, see below) or if an audit trail event record contains column data that does not match the SOURCEFILE schema definition (i.e., i.e., column not defined, event length is too short (has fewer columns than the target), event length is too long (has more columns than the target)). Additionally, when set to ON for an SQL table, the Consumer will abend with an appropriate EMS message if it detects that the TARGETFILE schema has dynamically changed, for example via an ALTER TABLE ADD COLUMN command (the theory being that the target schema is now different than the source).

For SQL, note that it is imperative that the ordinal position of columns and the data definitions associated with a SOURCEFILE reflect that of the true source file, i.e., i.e., the actual event data that HP Shadowbase will process from the audit trail. If they don't align, this could result in various column data mapping errors being reported by HP Shadowbase during replication (causing the Consumer to abend). This is particularly important to take into consideration when using a DBS MAPTOFILE parameter on a source node and relating it to a corresponding SOURCEFILE parameter in a target node configuration for non-Expand environments.

For SQL, ABENDONMISMATCH may not report (and abend on) all column data type differences between a source schema and a target schema. This is because HP Shadowbase's primary job is to allow replication to proceed by mapping the incoming event data into the target column definitions if at all possible. If the mapping is allowed by SQL, the Consumer will proceed; if not, the Consumer will abend with an EMS message describing the problem.

ACTIVETARGET

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.950			OFF	OFF	ON	No

The ACTIVETARGET parameter is used for "live-live" bi-directional replication environments only. Valid settings for ACTIVETARGET are ON and OFF. The default is OFF. If ACTIVETARGET is set to ON and there is a non-zero USEREXITID for the related DBS object, events associated with duplicate errors will be recycled back through the user exit in an iterative manner.

Notes:

- An UPDATEDUPLICATE iteration could be processed and if a duplicate error occurs on the update (would occur on a unique alternate key or index), another iterative cycle will occur with an attempt on the original insert event type. If a duplicate error occurs on an insert as the result of an INSERTNOTFOUND for an update, another iterative cycle will occur with an attempt on the original update event.
- A user exit can determine the current event type and original event type from calling SBGETUSRXPROCESSINFO. It can also determine if a duplicate error occurred on the prior event and take an appropriate action to resolve the situation. This action is dependent upon application requirements associated with the "live-live" environment.

IMPORTANT: IT IS THE USER EXIT'S RESPONSIBILITY TO ENSURE THAT THIS DOESN'T RESULT IN AN ENDLESS LOOP IN THE CONSUMER. THE USER EXIT SHOULD EITHER PRODUCE AN APPROPRIATE EVENT THAT RESOLVES THE DUPLICATE ERROR OR BYPASS THE EVENT. THIS IS NECESSARY BECAUSE THE CONSUMER WILL CONTINUE TO ATTEMPT A TARGET OPERATION AND RECALL USRXPROCESS AS LONG AS THE DUPLICATE ERROR OCCURS WHEN ACTIVETARGET IS SET TO ON AND USEREXITID IS NON-ZERO.

ALLOWQUEUEFILE {ON}
{OFF}

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
5.002			OFF	OFF	ON	No
		Client <input checked="" type="checkbox"/>	Server <input type="checkbox"/>	Extended <input type="checkbox"/>	Open Target <input checked="" type="checkbox"/>	

Special processing is likely in order to replicate Enscribe QUQUE files. By default, the Consumer will abend if it receives an event associated with a queuefile. ALLOWQUEUEFILE can be set to ON to allow the Consumer to process the event.

If you need to process a queuefile, special user exit logic may be (and often is) required. By default, Enscribe QUEUE files operate as FIFO objects, meaning that the first record enqueued (enqueue operations are replicated as INSERT events) is the first record removed by a dequeue operation (dequeue operations are replicated as DELETE events). This is because the default Enscribe QUEUE ordering scheme is via an internal 8-byte Julian timestamp as the high order part of the primary key. This timestamp is guaranteed by the file system to always be increasing for each successive enqueue operation. The Julian timestamp is file system assigned when the event is enqueued, and cannot be assigned by HP Shadowbase when HP Shadowbase enqueues that event into the target QUEUE file. Hence, the “primary key” between the source and target QUEUE files do not match. This means that, without user exit support, HP Shadowbase does not know the correct key of the record to remove when a dequeue operation is replicated.

ALLPARTITIONS { ON }
 { OFF }

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
4.091		OFF	OFF	ON	No

This parameter is used to indicate that all local partitions (i.e., those partitions on the COLL's node), associated with the primary partition specified in the SOURCEFILE parameter, are to be selected. The default is OFF. When set to ON, the DBS SOURCEFILE must be set to a fully-qualified file name and must be the primary partition.

The file name passed from the COLL to the CONS is for the primary partition (the COLL replaces the secondary partition volume with the primary partition volume name). Thus, the extended file statistics (STATS AUD output) for the CONS will only show the primary partition because the CONS only has the primary file in its selection/tracking list.

Note: Only local partitions are loaded into a COLL's selection list. This is because the COLL uses ARLIB to access the audit trail events, and ARLIB can only access data for local files/tables, not remote files or tables (or partitions thereof). If the COLL finds distributed partitions for a file/table (i.e., partitions on other nodes), the condition is printed to EMS. It is possible that HP Shadowbase replication may

need to be configured on the other node to pick up and replicate the distributed partitions.

Note: If you plan to utilize the SOLV loader for a related DBS object that has ALLPARTITIONS set ON, you should set the SOLV TARGETFNAME parameter to the subvol of the primary partition of the DBS SOURCEFILE value. Additionally, if your DBS object has MAPTOFILE set, then you should set the SOLV TARGETFNAME parameter to the subvol of the DBS MAPTOFILE value.

ALLUPDATES { ON }
 { OFF }

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
2.000		ON	OFF	ON	No

When set to ON, indicates that all updates should be applied, even if the before and after image are the same. The default is ON; updates will be applied even if the before and after image are the same.

Note: Turning it OFF may cause additional overhead in the Consumer when replicating to SQL target tables.

ALTEROPTIONS { alter-processing-option }
 { (alter-processing-option [, alter-processing-option] ...) }

Initial Version	Changed Version	Values Default	Value Specifications	Alter
5.002		<See Below>	Valid Alter processing options	
	No			

This parameter provides additional processing options when the Consumer receives an ALTER event.

Valid ALTEROPTOINS are as follows:

CLOSETABLES – By default for SQL/MP alter events, the Consumer will not close its target tables before processing the ALTER event. By specifying CLOSETABLES, the Consumer will close its target tables prior to replicating the alter against the related target table.

NODDLCOORDINATION – By default, all Consumers will complete processing of all in-progress and queued messages (“drained”) before an ALTER event is processed. This is necessary for coordinating the order of the events being processed. By

specifying NODDLCOORDINATION, the Consumers will not be “drained”. The ALTER event will be sent to the related Consumer in the same manner as insert, update, and delete events. Note that the coordination is controlled by the related Collector process. It “drains” all of its Consumers before sending a DDL event.

ALTERS {ON}
 {OFF}
 {(ON [, alter-option]...)}
 alter-option is any of:
 ADDCOLUMN
 AUDIT
 AUDITCOMPRESS
 BUFFERED
 MAXEXTENTS
 SECURITY

Initial Version	Changed Version	Values Default	Value Specifications	Alter
5.001	5.002	OFF	Valid Alters options	No

This parameter is used to define if Enscribe file and SQL/MP table alter events are to be replicated to the target. By default, this parameter is set to OFF. Set it to ON to enable the feature. When set to ON, the file attributes that are replicated are: maxextents, audit/no-audit (audit on and audit off), buffered/write-thru-cache, and audit compress on/off. Use the alter-option(s) to identify the specific attribute(s) you want replicated. When alter-option(s) is used, only those identified are replicated. Note that you must set ADDCOLUMN explicitly to enable the SQL/MP column additions option.

Notes: Altering a file from no-audit to audit will not update the target file because an audit trail event is not generated by TMF for this event. To replicate the change to audit ‘on’ the user must issue a second file alter that will generate an audit event (after audit is enabled). This can be something like an alter command of the maxextents – for example, setting the maxextents to the same number will add an alter event into the audit trail. The alter event read from the audit trail does not contain the detailed information for HP Shadowbase to actually use for altering the target file. Instead, the audit trail event simply tells HP Shadowbase that a FUP ALTER or SQLCI ALTER was done on the source file, not what attribute(s) were actually altered. When ALTERS is ON and HP Shadowbase reads an alter event from the audit trail, HP Shadowbase will actually use Guardian calls and/or access the SQL/MP catalog to retrieve the source and target file/table attributes (for example, HP Shadowbase

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will use filegetinfolist() calls to access certain source and target file/table attributes). This means that an Expand connection must exist from the target node to the source node for HP Shadowbase's target Consumer to retrieve the source file's or table's attributes (if it does not, HP Shadowbase will not replicate FUP and SQL/MP ALTER operations). Once it retrieves the source's attributes, HP Shadowbase will compare these attributes, and for those that are different, HP Shadowbase will set the target file/table to match the source file/table. This version of HP Shadowbase will not replicate all FUP and SQL/MP ALTER commands, for example altering the number of partitions, adding or removing alternate key files, etc. is not presently supported. Only those attributes listed above are supported. Contact HP Shadowbase Support for the availability of additional FUP and SQL/MP ALTER support for future releases.

AUDITDELETES {ON}
 {OFF}

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
5.001		OFF	OFF	ON	No

Related to the HP Shadowbase Other Servers "auditlog" feature, when set to ON, this parameter enables the NonStop Consumer to send all non-key before data for delete events. Special formatting is used to include the non-key data in the statement that is sent to the HP Shadowbase Other Servers. The default is OFF.

BASE24HANDLERID number

Initial Version	Changed Version	Values Default	Value Specifications	Alter
4.060		0		No

For example, to use the BASE24 ILF handler the third bit would be enabled:

0000000000001000

This binary number when converted to decimal is equal to 00008 and is used without the leading 0's as the BASE24HANDLERID for an ID of 8.

<Bit0> Relative file replication and BASE24 handling of DML events for the DBS. This includes the handling of writes and writeupdates (inserts, updates and deletes) for PTDF and PTIF files. See the parameter setting for SBBASE24-PTDF-REL-INS-ANYWHERE and SBBASE24-PTDF-RELATIVE-TIMEOUT below for additional

information when using this handler. Note that the Consumer settings for RETRYDELAY is used to timeout file IO operations.

When this bit is turned on (1), HP Shadowbase will assume that the source “primary key” (relative record number) will not be preserved when the records are replicated to the target file (this is common for replicating relative records in an active/active environment where the relative record numbers cannot be assured across the database copies). Instead, the unique alternate key (identified via the “TM” key specifier) will be used for positioning. Note that when this logic is enabled, HP Shadowbase implements special logic for properly handling the “reversing delete” operation of source-side alternate key file duplicate key errors (contact HP Shadowbase Support for more information).

<Bit1> Entry Sequenced file replication and BASE24 handling of DML events (e.g., a BASE24 PTLF file). This includes the handling of inserts, updates and deletes for files such as the BASE24 PCyymmdd and PAyymmdd file sets. When enabled, the “header” records (at relative record 0 position in the file, i.e., i.e., the first record in the file) are always replicated to the appropriate target location’s header record (INSERT and UPDATES to the source’s header record are always applied to the header record of the target file, either as an insert or an update/overlay of what is at that position). UPDATES to other records in the source are discarded (should not happen) – see the description of other bits below (for example, bit <3>) for how updates to other types of entry-sequenced files in BASE24 are handled .

<Bit2> This is the insert-anywhere bit and is used to determine how an insert into a relative file is handled by the file system (this logic is used for files that have the BASE24HANDLERID specified with bit <0> enabled).

When set to 1 (on), relative inserts are inserted “anywhere” (relative record value -2). When set to 0 (off), inserts are appended to the eof (relative record value -1).

<Bit3> Entry Sequenced file replication and BASE24 handling of DML events (e.g., a BASE24 ILF file). When enabled, the header records (relative record 0) are always replicated to the appropriate target location’s header record (INSERT and UPDATES to the source’s header record are always applied to the header record of the target file, either as an insert or an update/overlay of what is at that position).

UPDATES to all other records in the source (i.e., updates to any other record than the first record in the file) are applied to the target using the alternate key specifier provided in DBS parameter KEYSPECIFIER. The alternate key indicated by KEYSPECIFIER does not have to be unique. The UPDATE will only be applied to the first occurrence of an alternate key match along the specified path.

Source delete events are ignored and logged if the BASE24_MSG_LEVEL > 0.

Updates with a record length different from the target record will be logged and ignored (you cannot update an entry-sequenced file with a different record length).

If the DBS BEFOREVALUES is ON, the the source's "before" value of the alternate key fields is used for positioning. Hence, BEFOREVALUES should normally be enabled. However, setting the BEFOREVALUES to ON increases the data replication traffic as now both the before and the after values are replicated for an UPDATE (otherwise, only the after values are replicated). You can turn BEFOREVALUES to OFF (the default) if you are sure that your application does not change the PR alternate key file field values. When BEFOREVALUES is set to OFF, HP Shadowbase uses the source's after image key values for positioning.

In other words if the alternate key value is likely to change, then BEFOREVALUES of the DBS should be set to ON, otherwise target database corruption will result as HP Shadowbase will potentially update the wrong target record.

<Bit4> Entry Sequenced file replication and BASE24 handling of DML events (e.g., a BASE24 ILF file) with variable length records. When enabled, the header records (relative record 0) are always replicated to the appropriate target location's header record (INSERT and UPDATES to the source's header record are always applied to the header record of the target file, either as an insert or an update/overlay of what is at that position).

UPDATES to all other records in the source (i.e., i.e., updates to any other record than the first record in the file) are applied to the target using the "PR" alternate key specifier for positioning. The "PR" key specifier must exist for these files but does not have to be unique (HP Shadowbase uses the "PR" alternate key definition to get the alternate key's offset and length). If the alternate key of the target file contains multiple records for the same alternate key value, the

first record read that matches both the length of the target record and the contents of the before image (if DBS BEFOREVALUES is ON) will be updated. All other records will be ignored. If DBS BEFOREVALUES is disabled, only the record lengths are checked.

If no records are found along the alternate key path that matches the criteria, a message is logged (depending on the level of messages). If INSERTNOTFOUND is set, the update is converted to an insert. Otherwise the update is ignored.

If the DBS BEFOREVALUES are enabled, the source's "before" value of the alternate key fields is used for positioning. Hence, BEFOREVALUES should normally be ON. However, setting the BEFOREVALUES to ON increases the data replication traffic as now both the before and the after values are replicated for an UPDATE (otherwise, only the after values are replicated). You can turn BEFOREVALUES to OFF (the default) if you are sure that your application does not change the alternate key file values. When BEFOREVALUES is set to OFF, HP Shadowbase uses the source's after image key values for positioning: if the update changes the alternate key portion of the file, the wrong record may be selected for update on the target, and target database corruption will result. If the alternate key value can change, then BEFOREVALUES of the DBS should be set to ON.

Also note the that contents of each record read is compared to the before image only if BEFOREVALUES is ON. If you disable BEFOREVALUES, the first record read whose length matches that of the source record will be updated, possibly leading to the wrong record being updated on the target. Only disable BEFOREVALUES if you know the source application updates the first matching record length along this key path. In most cases, it is safest to leave BEFOREVALUES ON.

An update on the source for a record that does not exist on the target will only be convert to an insert if the INSERTNOTFOUND DBS settting is turned ON. Otherwise a message will be logged and the update will be ignored.

Note: Bit0 is the least significant bit in the integer number (the "ones" bit) and Bit5 to Bit15 are reserved for future use.

BEFOREVALUES { ON }
 { OFF }

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
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2.000	OFF	OFF	ON	No
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Determines whether Collector sends before images to the Consumer (when value set to ON) or not (value set to OFF). Default value is OFF. The value of this parameter set to ON may be needed by some user exit routines. See the *HP Shadowbase Programming Manual* for more details about user exits.

COLLISIONHANDLER number

Initial Version	Changed Version	Values Default	Value	Specifications	Alter
2.000		0	0	Off	No
			1	Slave to master	
			2	Master to slave	

This parameter can be set to a 0, 1, or 2 to define the logic path associated with reject file logging. If a reject file is configured, the Consumer will log "duplicate row/record" and "record/row not found" conditions that occur to the REJECTFILE. Note that HP Shadowbase has developed a Consumer with user exit code that utilizes a master/slave bi-directional replication strategy. The user exits will handle collision situations based upon the setting of COLLISIONHANDLER and may log conditions to the REJECTFILE via the new SBREPORTCOLLISION API function. A 1 designates that the DBS is operating in a slave to master situation. A 2 designates that the DBS is operating in a master to slave situation. Contact HP Shadowbase Support for additional information about this replication environment.

CONSNAM cons_name

Initial Version	Changed Version	Values Default	Value	Specifications	Alter
1.000		None	Valid Cons	OBJECT Name	No

Is the logical name of the Consumer to which this database specification pertains?

CONTROLTABLEEXT (<control clause>)

Initial Version	Changed Version	Values Default	Alter
4.092		None	No

This parameter takes the place of the three CONTROLTABLEEXT<n> parameters, and has a maximum length of 180 bytes. This parameter can be used to issue custom SQL CONTROL TABLE statements against a target table during startup of the Consumer. The parameter must be entered with starting and ending parenthesis ().

See the CONTROL TABLE statement in the NonStop SQL manual for all possible control statement options.

```
SET DBS CONTROLTABLEEXT (<control clause>)
```

Note: This parameter should not be used to specify the tablelock clause, as it is already handled based upon the setting of the CONTROLTABLELOCK parameter.

CONTROLTABLEEXT<n> (<control clause>)

Initial Version	Changed Version	Values Default	Alter
4.040C		None	No

This parameter set has been superseded by the single CONTROLTABLEEXT parameter. If CONTROLTABLEEXT is specified these parameters will be ignored.

The DBS CONTROLTABLEEXT1, CONTROLTABLEEXT2, and CONTROLTABLEEXT3 parameters can be used to issue custom SQL CONTROL TABLE statements against a target table during startup of the Consumer. Each parameter is 60 bytes in length and must be entered with starting and ending parenthesis (). The texts of these three parameters are directly concatenated together without the parenthesis, so trailing spaces should be added where appropriate.

For example, the following will disable sequential table access for reads, inserts, and updates. See the CONTROL TABLE statement in the NonStop SQL manual for all possible control statement options.

```
SET DBS CONTROLTABLEEXT1 (SEQUENTIAL READ OFF )            [note extra space]
SET DBS CONTROLTABLEEXT2 (SEQUENTIAL INSERT OFF )          [note extra space]
SET DBS CONTROLTABLEEXT3 (SEQUENTIAL UPDATE OFF)
```

Note: These parameters should not be used to specify the tablelock clause as it is already handled based upon the setting of the CONTROLTABLELOCK parameter.

CONTROLTABLELOCK { ON }
 { OFF }

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
2.000		OFF	OFF	ON	No

When set to OFF (the default), the CONTROLTABLELOCK DBS object parameter will prevent row locks from being escalated to a table lock on SQL targets. When set to ON, SQL may escalate locked rows to a table lock at it's discretion.

Note: That setting CONTROLTABLELOCK to OFF could result in a file system error 35 (unable to obtain I/O process control block) if the number of row locks for a transaction exceeds process or system lock limits. With most system, this could occur on the 5000th lock attempt. Typically, your applications should not update more than 4999 records or rows per transaction. If you experience an error 35, set CONTROLTABLELOCK to ON.

CREATEOPTIONS { create-option }
 { (create-option [, create-option] ...) }

Initial Version	Changed Version	Values Default	Value Specificatons	Alter
4.091	5.002	<See Below>	Valid Create options	No

This parameter provides additional options when the Consumer receives a CREATE event and creates the target file/table based upon the source. Prior to this parameter's availability, the Consumer created the file using the exact same

partitions and alternate key file information as the source file/table. If an Enscribe alternate key file existed on the target, it would be purged and recreated. The

CREATEOPTIONS allows the user to specify whether to keep or purge existing

Enscribe alternate key files; to specify that the target file is to be created with no Enscribe alternate keys (useful for certain testing scenarios) or SQL/MP indexes; to specify whether or not the Enscribe alternate key file names and SQL/MP indexes are mapped (useful when testing on the same node or when the target has different volume names than the source has); and to specify whether the partitions are created like the source file/table or that the target is created as a nonpartitioned file/table. CREATEOPTIONS apply to Enscribe files and SQL/MP tables. However, RECREATEALTFILES, KEEPALTFILES, and NOALTKEYS are only applicable to Enscribe files.

The alternate key file mapping looks at the relationship between the source file

and its alternate key files/indexes. If the source alternate key file or index is in the same subvolume as the source file/table, the target alternate key file or index is created in the same subvolume as the target file/table.

Similarly, if the source alternate key file is on the same volume as the source file/table, the target alternate key file or index will be created on the

same volume as the target file/table. The table below shows some examples of the mapping.

Source File	Source AltFile	Target File	Target AltFile w/ Mapping	Target AltFile w/o Mapping
\$vol.data. file	\$vol.data. file1	\$vol.data.file	\$vol.data.file1	\$vol.data.file1
\$vol.data.file	\$vol.data.file1	\$vol.tgt.file	\$vol.tgt.file1	\$vol.data.file1
\$vol.data.file	\$vol.data.file1	\$vol1.data.file	\$vol1.data.file1	\$vol.data.file1
\$vol.data.file	\$vol.data.file1	\$vol1.tgt.file	\$vol1.tgt.file1	\$vol.data.file1
\$vol.data.file	\$vol.altfile.file	\$vol.tgt.file	\$vol.altfile.file	\$vol.altfile.file
\$vol.data.file	\$vol.altfile.file	\$vol1.data.file	\$vol1.altfile.file	\$vol.altfile.file
\$vol.data.file	\$vol.altfile.file	\$vol1.tgt.file	\$vol1.altfile.file	\$vol.altfile.file
\$vol.data.file	\$vol1.data.file1	\$vol.tgt.file	\$vol1.tgt.file1	\$vol1.data.file1
\$vol.data.file	\$vol1.data.file1	\$vol1.data.file	\$vol1.data.file1	\$vol1.data.file1
\$vol.data.file	\$vol1.data.file1	\$vol1.tgt.file	\$vol1.tgt.file1	\$vol1.data.file1

Valid CREATEOPTIONS are as follows:

RECREATEALTFILES – For Enscribe only, the alternate key files on the target are purged and recreated if they exist. If they do not exist, they are created. This is the default if no altfile create options are specified.

KEEPALTFILES – For Enscribe only, existing alternate key files on the target are kept. Missing alternate key files are created.

NOALTFILES – The target file is created with the alternate keys as specified by the source, but no alternate key files are created. If the alternate key files exist, they are kept.

NOALTKEYS – For Enscribe only, the target file is created with no alternate keys and no alternate key files.

PARTITIONS– The target file/table is created with partition information based upon the source file/table. This is the default if no partition options specified.

NOPARTITIONS – The target file/table is created with no partitions, regardless of the structure of the source file/table.

ALTFILEMAPPING – The target alternate key files or indexes are created using the mapping algorithm described above. This is the default if no altkey file/index mapping options are specified.

NOALTFILEMAPPING – The target alternate key files or indexes are created with the exact same name as the source alternate key files or indexes on the target node.

CLOSETABLES – By default for SQL/MP alter events, the Consumer will not close its target tables before processing the CLOSE event. By specifying CLOSETABLES, the Consumer will close its target tables prior to replicating the create for the related target table.

NODDLCOORDINATION – By default, all Consumers will complete processing of all in-progress and queued messages (“drained”) before an CREATE event is processed. This is necessary for coordinating the order of the events being processed. By specifying NODDLCOORDINATION, the Consumers will not be “drained”. The CREAETE event will be sent to the related Consumer in the same manner as insert, update, and delete events. Note that the coordination is controlled by the related Collector process. It “drains” all of its Consumers before sending a DDL event.

CREATES { ON }
{ OFF }

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
3.943	5.002	OFF	OFF	ON	No

This is used to define if Enscribe file or SQL/MP create events are to be replicated to the target. By default, this parameter is set to OFF. Set it to ON to enable the feature. If NOALTFILEMAPPING is enabled and if the file/table contains alternate key files/indexes and/or partitions, the target must exist on a different node from the source file/table. Otherwise the file create is ignored to avoid corrupting the source file’s alternate-key files and/or partitions.

Notes: In version 3.943, DBS parameters were added to filter file purge and create events to the Consumer’s user exits. However it was up to the user to add the file create and purge logic to HP Shadowbase via user exit routines. In v4.060B this functionality was added to the standard HP Shadowbase product.

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DELETES { ON }
{ OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.000			ON	OFF	ON	No

This indicates whether the source database deletes are to be applied to the target. The default is ON.

Note: When the DELETES parameter is set to OFF, deletes are not applied to the target, but insert undo events are applied.

DELUIDXDUP { ON }
{ OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.964B			OFF	OFF	ON	No

When the target Consumer is applying an I/O event against a target file or table with a unique alternate key file or index, it is possible for the base file I/O to be successful yet the I/O to the alternate key file or index to fail with a duplicate key error. A simple example illustrates the issue – assume a uni-directional replication scenario where the target database is not initially empty and is not synchronized with the source database (this is often referred to as a “fuzzy replication” scenario):

- Assume the source database table is initially empty, yet the target database table has a record with primary key value of 1 and a unique index value of 1. In other words, the two are not initially synchronized when replication is enabled/started.
- Now assume that a source application inserts a row into the source table with primary key value of 2 and a unique index value of 1. This source insert is successful.
- When the replication engine applies that change into the target database, the base table insert will be successful, yet the unique index insert will fail with a duplicate key error (which backs out, or undoes, the entire insert on the target). In the previous versions of HP Shadowbase, this duplicate key error would be mistakenly viewed as a duplicate key error on the primary key (not the unique index) and would cause the INSERT event to be mapped into an UPDATE (if the fuzzy replication DBS parameter UPDATEDUPLICATE is ON), and re-applied. Executing this UPDATE will cause a “not found” condition (as no record with a primary key value of 2 exists in the target table), and then the UPDATE would be logged and discarded. In other words, the

source and the target databases would continue to diverge (not synchronize).

- In this new version of HP Shadowbase, the original duplicate key error on the INSERT of the row with primary key value of 2 and a unique index value of 1 would be identified as a collision on the unique index, and with the a new DBS parameter enabled (DELUIDXDUP), the target row that caused the collision (the fellow with a primary key value of 1 and a unique index value of 1) would be deleted, and the INSERT of the incoming row with a primary key value of 2 and a unique index value of 1 would be re-applied successfully. This causes the target database to converge to the source database's values (synchronize).

A similar (abbreviated in the example below) sequence occurs in the previous versions of HP Shadowbase for an active-active bi-directional replication scenario with one application running on each node as follows:

- Assume application #1 is running on node 1 against its local database, and inserts a row into its table A with primary key = 1 and unique index = 1.
- At the same instant, assume application #2 is running on node 2 against its local database, and inserts a row into its own table A with primary key = 2 and unique index = 1.
- Each of these inserts will locally succeed, but when they are replicated to the other node they will fail with a duplicate key error on the unique index. At this point, the tables will be left out-of-sync with table A on node 1 containing one row with (1,1) in it, and table A on node 2 containing one row with (2,1) in it.

Using the new HP Shadowbase collision resolution parameter (DELUIDXDUP), HP Shadowbase will *stubbornly, forcefully* apply an incoming I/O and when the duplicate key error occurs on the index, it will locate the offending target row with the offending unique index value and remove it, allowing the incoming I/O to be successfully applied. In other words, the target is *made* to look like the source.

In a bi-directional example, you would generally only enable this new parameter (DELUIDXDUP) in one direction, and probably enable the key-replay (KREP) feature of HP Shadowbase (also refer to the HP Shadowbase High Availability Designated Winner (SBHADW) documentation as that, by default, enables DELUIDXDUP for Master -> Slave links, and disables DELUIDXDUP for Slave -> Master links).

DOIFNOAUDATSTART {CONTINUE}
{STOP}

{WARN}

Initial Version	Changed Version	Values Default	Value Specification	Alter
4.091	4.092	CONTINUE	Valid Action	No

This parameter is used to enable startup-time checking in the CONS to ensure that the source files/tables for the DBS are audited. When set to CONTINUE, the CONS does not perform this check. When set to STOP or WARN, the CONS will perform the check and report the condition to EMS. If STOP is set and the CONS finds that the source is not audited, it also returns a user error and does not start.

FASTSTART-up is not executed when DOIFNOAUDATSTART is enabled (i.e., i.e., set to STOP or WARN) for any DBS objects. The default is WARN.

DOIFNOSRCATSTART {CONTINUE}
{STOP}
{WARN}

Initial Version	Changed Version	Values Default	Value Specification	Alter
4.091	4.092	CONTINUE	Valid Action	No

This parameter is used to enable startup-time checking in the CONS to ensure that the source files/tables exist for the DBS. When set to CONTINUE, the CONS does not perform this check. When set to STOP or WARN, the CONS performs the check and report the condition to EMS. If STOP is set and the CONS does not find any source files/tables, it also returns a user error and does not start.

FASTSTART-up is not executed when DOIFNOSRCATSTART is enabled (i.e., i.e., set to STOP or WARN) for any DBS objects. The default is WARN.

Note: Do not set DOIFNOSRCATSTART to STOP for dynamically created source files or tables.

DOIFNOTRGATSTART {CONTINUE}
{STOP}
{WARN}

Initial Version	Changed Version	Values Default	Value Specification	Alter
4.091	4.092	CONTINUE	Valid Action	No

This parameter is used to enable startup-time checking in the CONS to ensure that the target files/tables exist for the DBS. When set to CONTINUE, the CONS will not perform this check. When set to STOP or WARN, the CONS performs the check and report the condition to EMS. If STOP is set and the CONS does not find any target files/tables, it also returns a user error and does not start.

FASTSTART-up is not executed when DOIFNOTRGATSTART is enabled (i.e., i.e., set to STOP or WARN) for any DBS objects. The default is WARN.

Note: Do not set DOIFNOTRGATSTART to STOP for dynamically created target files or tables.

DOIFNOSRCATRUN {CONTINUE}
 {STOP}
 {WARN}
 {WARN1ST}

Initial Version	Changed Version	Values Default	Value Specification	Alter
4.091		WARN1ST	Valid Action	No

This parameter is used to enable run-time checking in the CONS to ensure that the source file/table, associated with the current event for the DBS, exists. Note that this run-time checking is only performed if the CONS CHECKFORMISSING parameter is set to ON. When DOIFNOSRCATRUN is set to CONTINUE, the CONS does not perform this check for the DBS associated with the current audit trail event. When set to STOP, WARN, or WARN1ST the CONS does perform the check and report the condition to EMS. WARN causes the CONS to report the condition for every event. WARN1ST causes the CONS to report the condition for the first event only associated with the source file/table. The CONS abends if STOP is set and it does not find the source file/table. The default is WARN1ST.

DOIFNOTRGATRUN {CONTINUE}
 {STOP}
 {WARN}
 {WARN1ST}

Initial Version	Changed Version	Values Default	Value Specification	Alter
4.091		WARN1ST	Valid Action	No

This parameter is used to enable run-time checking in the CONS to ensure that the target file/table, associated with the current event for the DBS, exists. Note that this run-time checking is only performed if the

CONS CHECKFORMISSING parameter is set to ON. When DOIFNOTRGATRAN is set to CONTINUE, the CONS does not perform this check for the DBS associated with the current audit trail event. When set to STOP, WARN, or WARN1ST the CONS does perform the check and report the condition to EMS. WARN causes the CONS to report the condition for every event. WARN1ST causes the CONS to report the condition for the first event only associated with the target file/table. The CONS abends if STOP is set and it does not find the target file/table. The default is WARN1ST.

DTSEPARATORVAL{"<value">}

Initial Version	Changed Version	Values Default	Value Specifications	Alter
5.002		space (hex '20')	Any alphanumeric character	No

By default the Consumer will use a space character for the separator between the date and the time in a datetime column value sent to a HP Shadowbase HP Shadowbase Other Servers. This parameter can be used to designate the character that should be used instead of a space.

DTSOURCEFORMAT { ON }
{ OFF }

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
5.002		OFF	OFF	ON	No

By default for the SQLSBV1 TARGETTYPE related to replication to a HP Shadowbase HP Shadowbase Other Servers, the Consumer will send the datetime parts (i.e. year, month, day, hour, minute, second, and fraction) based upon the definition of a TARGETFILE column if specified, or if a TARGETFILE is not specified, it will send all datetime parts with initialized values for the parts that aren't in the source. When set to ON for SQLSBV1 when there is no TARGETFILE specified, the Consumer will send only the datetime parts that are present in the source.

```
ENTRYSEQEXACT {ON}
                {OFF}
                { ( ON [, entryseqexact-option] ... ) }
                entryseqexact-option is any of the following:
                [NODELAYFLUSH | DELAYFLUSH]
                [EXCLUSIVEOPEN |
PROTECTEDOPEN]
                [NOWARNONMISSING
|WARNONMISSING]
```

[NOSTOPONMISSING |
STOPONMISSING]
[BUFFERED | WRITETHRUCACHE]
defaults when ENTRYSEQEXACT is ON are:
DELAYFLUSH
PROTECTEDOPEN
NOWARNONMISSING
STOPONMISSING
WRITETHRUCACHE

Initial Version	Changed Version	Values Default	Value Specifications	Alter
5.002		OFF	Valid ENTRYSEQEXACT options	No

For Enscribe entry-sequenced replication, when set ON, ENTRYSEQEXACT provides a mode of replication that uses unaudited/unstructured block oriented I/O to maintain a target copy of a non-partitioned or partitioned file. Generally, the target file should be created exactly the same as the source file. Note that this mode of replication does not result in I/O to the alternate key files. It only does I/O to the base file partitions.

Available Entryseqexact Options:

NODELAYFLUSH or DELAYFLUSH – NODELAYFLUSH causes the CONS to flush a block to disk each time a block is changed (for every I/O event). DELAYFLUSH causes the CONS to delay the flush of a block, resulting in better performance and throughput. Blocks are flushed to disk when an I/O event causes access to a different block than the one currently being modified (with inserts, updates, deletes) and prior to a reply message back to the COLL which can cause the COLL's audit restart reading position to advance.

EXCLUSIVEOPEN or PROTECTEDOPEN – EXCLUSIVEOPEN causes the CONS to open the target file exclusively. PROTECTEDOPEN will allow the file to be opened for read-only access while the CONS has the file opened for replication. EXCLUSIVEOPEN will not permit any access to the file while the CONS has it open.

NOWARNONMISSING or WARNONMISSING – It is possible that blocks (records) can be missing in a target if replication for a given file does not start with the first event or the restart position is altered to skip audit trail data. If NOSTOPONMISSING is configured and WARNONMISSING is configured, the CONS will report the condition to EMS if it is detected. It will not report the condition to EMS if NOWARNINGONMISSING is configured.

NOSTOPONMISSING or STOPONMISSING – If the CONS detects that blocks (records) are missing from a target during replication, STOPONMISSING will result in the CONS abending with an appropriate EMS message to indicate the condition. It will not abend if NOSTOPONMISSING is configured.

BUFFERED or WRITETHRUCACHE – WRITETHRUCACHE causes the CONS to set this mode of I/O for the file in the file system. This results in blocks being flushed to disk immediately after a CONS does an I/O for a given block. BUFFERED will cause the file system to use the disk cache and flush less frequently.

Notes: Because I/O is not done to the alternate key files, you will need to load the alternate key files before making use of the target files in an application program that uses the alternate key files.

Because unaudited/unstructured block-oriented I/O is used in this mode of replication, there is a possibility that some data loss can occur if the NonStop system crashes and it becomes necessary to deploy a target on a backup NonStop system. The most reliable configuration to use in order to minimize this data loss is to set NODELAYFLUSH and WRITETHRUCACHE. Note that CONS I/O throughput is less with these settings. The best performing configuration is to set DELAYFLUSH and BUFFERED, but this has the highest probability of data loss should a failover to a backup system become necessary.

For partitioned files, there is a window of time where data may flow into a subsequent partition before the prior partition is full. If a HP Shadowbase failure occurs before all data arrives for the prior partition and you need to switch to a backup system application, there may be some data loss. Additionally, an application will not be able to sequentially read the data in the secondary partition unless the prior partition is repaired. The FIXESEQ program is included that will repair incomplete partitions. It should be run prior to deployment of the target file being used in an application. For more information about FIXESEQ, reference the *HP NonStop Shadowbase Installation and Planning Manual* section on this topic.

After running FIXESEQ and before deployment of a target in an application, you should turn audit on using FUP. You should also consider doing a TMFCOM DUMP FILES of the related entry-sequenced files after audit is turned on and before deployment of the files. This is a consideration because the I/O used by the

CONS for this mode of entry-sequenced file replication is not under TMF transaction control (unaudited).

EXTENDINSERT { OFF }
<decimal number>

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
3.980B		OFF	0	255	No

The Consumer can now be configured to pad an Enscribe TARGETFILE record in the event an insert audit trail event record length is shorter than the target record length as defined when the file was created (i.e., the Consumer uses the file label record length to determine the target record length and its padding). The DBS object parameter EXTENDINSERT (used for inserts) was added to define the character to be used for padding the target record.

The parameter value is specified as a decimal number (0 through 255) representing an ASCII character. For example, the value 32 would be used to have the target padded with " " (space character). The value 88 would be used to have the uppercase "X" character used for padding.

The default value is OFF, meaning that the original source record length is used for the target record length for the insert.

The EXTENDINSERT DBS parameter is useful when the target Enscribe file definition does not match the source, or when you want to make sure all records written into a target file are of the same length (to match the file's defined length). When enabled, a shorter or insert event will be padded out to the file's defined record length using the pad character.

Note: That a DBS TARGETREC DDL definition and the initialization associated with the field definitions for the record layout take precedence over EXTENDINSERT. That is, when a TARGETREC parameter is specified and a short record is being processed, the target record length is derived from the specified record definition and initialized based upon the DDL field definition types (e.g., character fields are padded with spaces; binary integers are padded with binary zeros, etc).

The following are examples of setting the parameter.

```
SET DBS EXTENDINSERT OFF
or
SET DBS EXTENDINSERT <decimal number>
```

EXTENDUPDATE { OFF }
<decimal number>

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
3.980B		OFF	0	255	No

The Consumer can now be configured to pad an Enscribe TARGETFILE record in the event an update audit trail event record length is shorter than the target record length as defined when the file was created (i.e., the Consumer uses the file label record length to determine the target record length and its padding).

The DBS object parameter EXTENDUPDATE (used for updates) was added to define the character to be used for padding the target record.

The parameter value is specified as a decimal number (0 through 255) representing an ASCII character. For example, the value 32 would be used to have the target padded with " " (space character). The value 88 would be used to have the uppercase "X" character used for padding.

The default value is OFF, meaning that the original source record length is used for the target record length for the update event.

The EXTENDUPDATE DBS parameter is useful when the target Enscribe file definition does not match the source, or when you want to make sure all records written into a target file are of the same length (to match the file's defined length). When enabled, a shorter or update event will be padded out to the file's defined record length using the pad character.

Note: That a DBS TARGETREC DDL definition and the initialization associated with the field definitions for the record layout take precedence over EXTENDUPDATE. That is, when a TARGETREC parameter is specified and a short record is being processed, the target record length is derived from the specified record definition and initialized based upon the DDL field definition types (e.g., character fields are padded with spaces; binary integers are padded with binary zeros, etc).

The following are examples of setting the parameter.

```
SET DBS EXTENDUPDATE OFF
or
SET DBS EXTENDUPDATE <decimal number>
```

FETCHSOURCE {ON}
{OFF}
{ (ON [, fetchsource-option] ...) }

fetchsource-option is:

- one of the following warning options:
 - [MISSINGSRC]WARN
 - [MISSINGSRC]NOWARN (default)
- or one of the following behavior options:
 - [MISSINGSRC]ABEND
 - [MISSINGSRC]SKIP (default)
 - [MISSINGSRC]SENDCMP
- or one of the following image usage options:
 - [ALWAYSUSE]AUDIT (default)
 - [ALWAYSUSE]SOURCE
- or one of the following short record warning options:
 - SHORTRECWARN
 - SHORTRECNOWARN (default)
- or one of the following short record behavior options:
 - SHORTRECABEND
 - SHORTRECSKIP
 - SHORTRECSENDCMP
 - SHORTRECSENDSRC (default)

Initial Version	Changed Version	Values Default	Value Specifications	Alter
5.001	5.002	OFF	Valid FETCHSOURCE options	No

When set to ON, the DBS will enable full table or row replication of source data that has the Guardian file system's AUDITCOMPRESS attribute set to on. This feature also relaxes any previous replication limitations when AUDITCOMPRESS is set. Version 5.001 (initial version) only supports SQL/MP tables.

The warning options are MISSINGSRCWARN/NOWARN and the default is NOWARN. When set will display an EMS warning message if the source row does not exist at time event is processed.

The behavior options if the source system row is missing at time of the fetch are: MISSINGSRCSKIP, (default) where the consumer will skip the compressed event for the DBS (and any missing source records or rows will not have any of their compressed values applied to the target); MISSINGSRCABEND, where replication will stop until the problem can be rectified; MISSINGSRCSENDCMP, where the consumer will simply forward the compressed event to the target.

Further image usage options include ALWAYSUSEAUDIT, (default) uses the data value found in audit. Optionally, the user may specify ALWAYSUSESOURCE and have the value retrieved from the source record or row applied to the target. In either case, the final image of the target after replication has caught up will always be identical to the source.

As of 5.002, FETCHSOURCE now supports Enscribe files in addition to SQL/MP tables. The following options have been added to support Enscribe files:

The short record warning options are SHORTRECWARN and SHORTRECNOWARN. When set to SHORTRECWARN, an EMS warning message will be generated if a short (with respect to the compressed update image) record is fetched from the Enscribe source file. For SQL/MP tables, this option has no effect. The default value is SHORTRECNOWARN.

The short record behavior options determine how the Consumer will proceed when a source record is fetched that is shorter than the length of the compressed update image. When SHORTRECABEND is specified, the Consumer will abend if this occurs. When set to SHORTRECSKIP, the update event will be skipped. SHORTRECSENDCMP will cause the compressed audit image to be applied as a compressed update. In contrast, if SHORTRECSENDSRC is specified, the target will be updated to the record fetched from the source file. For SQL/MP tables, the specified short record behavior option has no effect. The default value is SHORTRECSENDSRC.

The default value for FETCHSOURCE is OFF.

FIXUPDECIMAL {ABEND}
{SETSQLNULL}
{SETUNCHANGED}
{SETZERO}
{SETZEROLENGTH}

Initial Version	Changed Version	Values Default	Value Specificatons	Alter
5.002		ABEND	Valid FIXUPDECIMAL	No

FIXUPDECIMAL is used to tell the Consumer what it should send to an HP Shadowbase Other Servers when it detects nulls (binary zeroes) in a field associated with an Enscribe source file. Note that if there is a dummy SQL target table and this condition is detected and the related target column is defined as nullable, null will be sent to the HP Shadowbase Other Servers.

This determines the data format generated by the HP Shadowbase Consumer for transmission. Each option for FIXUPDECIMAL is described below:

- ABEND The Consumer will abend with an appropriate EMS message reported.
- SETSQLNULL The Consumer will send a NULL.
- SETUNCHANGED The Consumer will send the raw data value. Note that this could cause the HP Shadowbase Other Servers to fail due to incorrect data.
- SETZERO The value 0 (zero) will be sent.
- SETZEROLENGTH For a non-cached HP Shadowbase Other Servers, the Consumer will abend if FIXUPDECIMAL is set to this value. For a cached Open Server, the Consumer will send a length of zero for the data.

FILEDDLDELAY seconds

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.070			-1	-1	32767	No

This parameter defines the number of seconds that the Consumer will delay before re-attempting a file maintenance operation (e.g., file alter, purge, and create operations) for an Enscribe target file. If FILEDDLDELAY is set to -1 (the default), the value for the associated CONS object is used. The valid range is -1 to 32767. Note that this parameter can't be altered at this time.

FILEDDLRETRIES number

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.070			-1	-2	32767	No

This parameter defines the number of retries following a retry-able error condition for file maintenance operations (e.g., alter, purge, and create operations) for an Enscribe target file. The valid range is -2 to 32767 and takes the following values:

FILEDDLRETRIES = -2: Retry indefinitely.

FILEDDLRETRIES = -1: Use the value set for the CONS.

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FILEDDLRETRIES = 0: No retries.

FILEDDLRETRIES > 0: The number of times to retry the operation after the initial failure.

The default value is -1: use the value set for the CONS. Note that this parameter can't be altered at this time.

HADWLOGEVENTS { ON }
 { OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.964			OFF	OFF	ON	No

Determines whether or not a trace of the events that are processed by the HADW solution are logged into the EMS subsystem. This is useful for understanding (or debugging) the HADW logic. The default is OFF.

Note: Parameter only used when you have the HADW option configured in HP Shadowbase.

HADWLOGREJECT { ON }
 { OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.964			OFF	OFF	ON	No

Determines whether a REJECT FILE event is logged when an incoming event is discarded or a data collision is detected. The default is OFF.

Note: Parameter only used when you have the HADW option configured in HP Shadowbase.

HADWLOGSAME { ON }
 { OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.964			OFF	OFF	ON	No

This parameter determines whether an EMS message is logged when an event that satisfies the HADWSKIPSAME criteria is met. The default is OFF

Note Parameter only used when you have the HA-DW option configured in HP Shadowbase.

HADWSKIPSAME { ON }
 { OFF }

HP NonStop Shadowbase Command Definitions

Database Specification Command Descriptions

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.964			OFF	OFF	ON	No

Determines whether an incoming event is applied against the target database when the target event matches the incoming event exactly (e.g., if an SQL UPDATE arrives that sets the row's columns to the same values as are already in the target row, the UPDATE is discarded if the target row already matches the incoming values). The default is OFF.

Note: Parameter only used when you have the HA-DW option configured in HP Shadowbase.

INCLUDESBDATA { ON }
{ OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
5.001			OFF	OFF	ON	No

When set to ON, the Consumer will look for and recognize special well known name columns in the schema of the targetfile. These special columns do not need to exist in the sourcefile, and will have the corresponding values placed into them depending on the name of the column. When set to OFF, columns with these names will be treated normally (like any other column would be).

Well-known name columns are currently only supported for NonStop SQL/MP and HP Shadowbase HP Shadowbase Other Servers targets.

IGNOREERROR {error-number[, error-number, ...]}
{-1}

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.070			-1			No

This parameter is related to SQL and Enscribe I/O, the DBS IGNOREERROR parameter identifies HP NonStop errors that are to be ignored. For example, if you know you will be rebuilding the target alternate key files, you may want to set HP Shadowbase to ignore error 4 (failure to open alternate key file). When an ignored error occurs, processing will continue normally after a warning message appears in EMS and optionally logged to the Reject File depending on the value of the LOGREJECTIGNORE parameter. See the *HP NonStop Shadowbase Operations Manual* for a list of default IGNOREERROR numbers. Note

that -1 means undefined: the DBS specific list of errors to be ignored is reset. Also, note that this parameter can't be altered at this time.

Notes:

- 1) HP Shadowbase has built in error processing which causes a number of errors to be ignored or retried as documented in the HP NonStop Shadowbase Operations Manual. This list modifies the list of ignored errors, it does not replace it.
- 2) This list applies to insert, update, and delete operations against files and tables; other operations such as file open and close that may cause the same error to occur will not necessarily have the error ignored.
- 3) File opens are a special case. If the error is in the ignore list and the file opens successfully (such as is the case with an error 4), processing will continue. If the error prevents the file from being opened, it will not be ignored.
- 4) The action taken for an error depends on which list (IGNOREERROR, RETRYERROR, STOPERROR) at which level (DBS, CONS, or default) it is found on. The evaluation is done using the following order of precedence:
 - a. First, if the error is found in a DBS specific list, the appropriate action for the list is taken.
 - b. Next, if the error is found in a CONS specific list, the appropriate action for that list is taken.
 - c. Next, if the error is found in one of the default lists, the appropriate action is taken.
 - d. Finally, if the error is not on any list, it is treated as a STOPERROR.

IGNOREDDLERROR {error-number[, error-number, ...]}
 {-1}

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.070			-1			No

This parameter is related to Enscribe target file maintenance operations (e.g., alter, purge, and create operations), the IGNOREDDLERROR parameter identifies HP NonStop errors that are to be ignored. When an ignored error occurs, processing will continue normally after a warning message appears in EMS and optionally logged to the Reject File based upon the value of the LOGREJECTIGNORE parameter. Note that -1 means undefined: the DBS specific list of errors to be ignored is reset. Also, note that this parameter can't be altered at this time.

Notes: The PURGEIFEXISTS parameter overrides the IGNOREDDLERROR parameter for error 10. If PURGEIFEXISTS is ON and an error 10 is encountered while trying to create a file, the existing file will be purged regardless of the setting of IGNOREDDLERROR. If you want to keep the existing file when a file create is replicated, you must turn PURGEIFEXISTS off and include error 10 on the IGNOREDDLERROR list.

INSERTNOTFOUND { ON }
 { OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.000			OFF	OFF	ON	No

If the Consumer receives a “record not found error” (NonStop error 11) while trying to update a record and INSERTNOTFOUND is set to ON, the update will be turned into an insert into the target. If the parameter value is set to OFF, the update will not be applied and an insert will not be done. The default is OFF.

Note: If INSERTNOTFOUND is set to ON, the Auditcompress attribute must be turned off for the source file. It is also highly recommended that if INSERTNOTFOUND is set to ON that the Consumer’s WARNINGS parameter be set to OFF.

INSERTS { ON }
 { OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
1.000			ON	OFF	ON	No

This indicates whether the source database inserts are to be applied to the target. The default is ON.

KEEPOPEN { ON }
 { OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.070			ON	OFF	ON	No

When KEEPOPEN is OFF and MAPFROMSOURCE is ON, the CONS will close files as they rollover, keeping one file open per distinct subvolume. When KEEPOPEN is set to ON, it will keep all files within the subvolume open until CONS FILECLOSEDELAY is reached.

KEEPLONGERRECORD { ON }
 { OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.961			OFF	OFF	ON	No

This parameter has been added for like-to-like Enscribe replication. When no TARGETREC parameter has been supplied and KEEPLONGERRECORD is set to ON, the Consumer will retain a longer record when it attempts to process an update event that is shorter than the target record (the Consumer will overlay the first n bytes of the target record with the incoming update's data). The default for KEEPLONGERRECORD is OFF.

KEYSPECIFIER <key-specifier>

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.090				-32768	32767	No

This parameter is used to identify the key-specifier associated with a target file alternate key file that will be made available to BASE24 handler code in the Consumer to aid in identifying a unique record in a target file. The value can be entered as a 2 byte string delimited by double quotes (e.g., "A" or "I1" or "IX", etc.) or can be specified as a number in the range -32768 to 32767 similar to how the key-specifier can be defined within the NonStop FUP utility.

Note: By default, HP Shadowbase uses the primary key value of the source record/row to locate the correct target record/row to process.

LOGREJECTSTOP {ON}
 {OFF}

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.070			OFF	OFF	ON	No

This parameter is used to indicate if a fatal error condition, detected as a part of the extended error handling, is to be logged to the Reject File. To log errors to the reject file, set the parameter to ON. The default value is OFF. Note that this parameter can't be altered at this time.

LOGREJECTIGNORE {ON}
 {OFF}

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.070			OFF	OFF	ON	No

This parameter is used to indicate if an ignored error condition, detected as a part of the extended error handling, is to be logged to the Reject File. To log errors to the reject file, set the parameter to ON. The default value is OFF. Note that this parameter can't be altered at this time.

MAPFROMSOURCE { ON }
{ OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.905	4.092		OFF	OFF	ON	No

Set to ON to enable the support of dynamically used Enscribe file sets. The default is OFF.

This parameter is supported in NonStop to NonStop and NonStop to Open replication, respectively.

The SET DBS PATHNAME parameter must be set when using this parameter.

The following considerations apply to replication threads from nonStop to the HP Shadowbase Other Servers:

- Version 4.092 introduced the use of the “^” (circumflex) character in the PATHNAME for dynamically created filenames to be sent to the target.
- This usage allows multiple source files/tables within a particular NonStop subvolume and associated with a single DBS object (ie a wildcarded DBS object for picking up 'daily' files), to be uniquely identified in the SQL statements sent to the HP Shadowbase Other Servers.

See the *HP NonStop Shadowbase Installation and Planning Manual* for additional information.

MAPTOFILE dummy_fname

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
3.600			None	Valid file name Include NODE	No

This parameter indicates the name of a dummy file or table to be used for mapping schema/DDL Records from all of the sourcefile partitions, even when the partitions do not exist at the start of replication. The Dummy_fname must exist at start, and must be of identical schema/DDL Record representation as SOURCEFILE.

MAPTOTEMPLATE { ON }
 { OFF }

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
4.070	5.001	OFF	OFF	ON	No

By setting this parameter ON, it indicates the use of a common MAPTOFILE for multiple DBS objects. The default is OFF, requiring a distinct MAPTOFILE file for each DBS object. This parameter is typically used when the file attributes are the same for many files within multiple subvolumes and eliminates the need for many MAPTOFILE's of similar characteristics. Note that a DBS object logical association is used within the Consumer for mapping the source to the proper target file. As a result of this association, for NSK-to-NSK environments using STP TCP/IP (client/server CONS's), the DBS object names must be the same for both the client CONS and the server CONS.

This parameter was rendered OBSOLETE in release 5.001 of NonStop HP Shadowbase in DBS that are configured to replicate dynamic Enscribe file sets (ie a 'daily' file).

MAXRETRIES number

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
4.070		-1	-2	32767	No

This parameter defines the number of retries following an error condition for SQL and Enscribe I/O operations. The valid range is -2 to 32767 and takes the following values:

MAXRETRIES = -2: Retry indefinitely.
MAXRETRIES = -1: Use the value set for the CONS.
MAXRETRIES = 0: No retries.
MAXRETRIES > 0: The number of times to retry the operation after the initial failure.

The default value is -1: use the value set for the CONS. Note that this parameter can't be altered at this time.

MXPARTNAMES (partition-ansiname [,partition-ansiname] ...)

Initial Version	Changed Version	Values Default	Value Specifications	Alter
5.000		None	partition-ansiname, ..	No

Specifies a list of one or more partitions of a SQL/MX table to be included or excluded. If not specified, all partitions are selected for inclusion or exclusion when an MXSOURCETABLE is specified for a DBS object. The specified partitions must be fully qualified ansinames, and wildcarding of the partition ansinames is not supported.

MXPATHNAME path-ansiname

Initial Version	Changed Version	Values Default	Value Specifications	Alter
5.000		None	path-ansiname	No

This parameter functions similar to the PATHNAME DBS parameter, but allows for larger ansinames to be specified and is only used for replication of SQL/MX tables.

MXTARGETTABLE, MXPATHNAME, or PATHNAME must be specified for each INCLUDE spec DBS with an SQL/MX source. Note that MXPATHNAME and PATHNAME are mutually exclusive.

MXSOURCETABLE fully-qualified-table-ansiname

Initial Version	Changed Version	Values Default	Value Specifications	Alter
5.000		None	fully-qual-table-ansiname	No

Identifies the fully qualified name of the source table to be included or excluded. All of the catalog name, schema name, and table name must be supplied. This parameter functions similar to the SOURCEFILE parameter, but for use with SQL/MX tables only, and allows for the longer ansiname supported for these table names. Wildcarded filesets are not supported for SQL/MX at this time.

Note: The MXSOURCETABLE has limitations which exist when the catalog or schema are numeric, i.e., CAT.1234.MX_TABLE_NAME, note the schema name is all numeric. For MXSOURCETABLE parameter, you must enter the value

MXSOURCETABLE CAT."1234".MX_TABLE_NAME

where the numeric field is delimited by “” characters.

MXTARGETTABLE fully-qualified-table-ansiname

Initial Version	Changed Version	Values Default	Value Specifications	Alter
5.000		None	fully-qual-table-ansiname	No

This parameter specifies the fully qualified ansiname of the destination SQL/MX table. Fully qualified table names include the catalog, schema, and table. This parameter replaces the TARGETFILE parameter for SQL/MX replication only, and allows for the larger table ansinames to be specified. Wildcarded filesets are not supported with this parameter at this time.

MXTARGETTABLE, MXPATHNAME, or PATHNAME must be specified for each INCLUDE spec DBS with an SQL/MX source.

ORDERCOLSFORDELS {ON}
{OFF}

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
5.001		OFF	OFF	ON	No

Related to SQL delete statements sent to the HP Shadowbase Other Servers associated with a DBS object, the ORDERCOLSFORDELS parameter indicates that the CONS should order the statement column list and data based upon the order of the key columns in the target schema (or source schema if there is no TARGETFILE parameter), regardless of the order of the user exit “puts”. Because there is additional overhead over the pre-5.001 release to do this, the default is OFF. Note that if user exit “puts” are done in an arbitrary order for a particular DBS user exit, it might be better overall to enable this feature, particularly if there are many statements being cached by an HP Shadowbase Other Servers for all DBS objects. Also, take note that this parameter is not considered if the TACL parameter SBCONSORDERCOLS is set to 0 (zero).

PATHNAME name

Initial Version	Changed Version	Values Default	Value Specifications	Alter
3.900	4.092	None	Valid Open Server Table Name	No
When using MAPFROMSOURCE the file name replacement rules				

This optional parameter is used under the following conditions:

- In a HP NonStop to HP Shadowbase Other Servers environment, PATHNAME contains the target filename for the open system. PATHNAME accommodates filenames that are not typical HP NonStop format.
- Version 4.092 introduced case-sensitive PATHNAMEs (i.e., “Table_Name”). In an Open to NonStop environment, PATHNAME contains the source table name.
- When replicating dynamically created Enscribe files in NonStop to NonStop replication environments.
 - MAPFROMSOURCE DBS parameter must be used in conjunction with PATHNAME in this scenario.

NonStop to Open replication considerations for using PATHNAME:

The DBS MAPFROMSOURCE parameter allows multiple source files/tables within a particular NonStop subvolume and associated with a single DBS object, to be individually identified (that is, separated) in the SQL statements sent to the HP Shadowbase Other Servers.

The DBS PATHNAME parameter continues to be used to identify an HP Shadowbase Other Servers target table for the SQL statements when needed. This parameter has been enhanced such that a single ^ character (circumflex) can be specified to have the source or target file name (right-most 8 byte portion of the full file name) inserted into the PATHNAME value when the SQL statement is generated. For example, if the source file in the audit trail event contains \S1.\$DATA1.MYSVOL.MYTAB01 and you have a DBS PATHNAME set to OPEN-SERVER-^, the table name in the SQL will contain OPEN-SERVER-MYTAB01.

The following are the rules used within the CONS to generate the table name in the SQL statements sent to an Open Sever:

- If a user exit calls SBSETPATHNAME with a valid pathname, the statement table name will be set to the UE pathname value (as is).
- Regardless of the MAPFROMSOURCE setting, if there is no TARGETFILE and no PATHNAME and no user exit SBSETPATHNAME, then the statement table name will be set to the original event SOURCEFILE (8 byte portion read from the audit trail).
- If there is a TARGETFILE, but no PATHNAME and no user exit SBSETPATHNAME, then the statement table name will be set to the TARGETFILE (8 byte portion).
- If PATHNAME is set and does not have a ^ character in it, then the statement table name will be set to the DBS PATHNAME value (as is).

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- If MAPFROMSOURCE is ON and there is a PATHNAME with a ^ character, then the tablename will be set to the DBS PATHNAME, replacing the ^ with the original SOURCEFILE (8 byte portion read from the audit trail).
- If MAPFROMSOURCE is OFF and there is a PATHNAME with a ^ and there is a TARGETFILE, then the tablename will be set to the DBS PATHNAME, replacing the ^ with the TARGETFILE (8 byte portion).
- If MAPFROMSOURCE is OFF and there is a PATHNAME with a ^ and there is no TARGETFILE, then the tablename will be set to the DBS PATHNAME, replacing the ^ with the original SOURCEFILE (8 byte portion read from the audit trail).

Refer to the *HP NonStop Shadowbase Installation and Planning Manual* for additional information.

PULSEFILE { ON }
 { OFF }

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
3.990		OFF	OFF	ON	No

This parameter was added to support the pulse feature. When set to ON, this parameter identifies a DBS object as a PULSEFILE, and is needed for a source or client Consumer if pulsing is to be enabled, as well as for a target or server Consumer when a source object is sending pulses. The default value is OFF.

Note: That for a HP NonStop-to-NonStop replication environment over TCP/IP, the client Consumer and server Consumer must both be configured with a pulse file DBS object.

The DBS UPDATEDUPLICATE parameter must be set ON when PULSEFILE is ON.

Note: That the DBS SOURCEFILE should specify a filename “local” to the source database that is being replicated. The DBS TARGETFILE should specify a filename “local” to the target database that is being replicated to.

Note: That for NonStop-to-NonStop replication environments, the DBS SOURCEFILE and TARGETFILE can be set to the same file name. This is not recommended when the Collector is running on one node and the Consumer is running on a different node (especially when there is no Expand connection between the nodes). In that situation, you should configure a different TARGETFILE file name. Also, note that a TARGETFILE parameter is not necessary when

replicating to an HP Shadowbase Other Servers. However, like with other open targets, you may need to set the DBS PATHNAME parameter. See the 3.990 open softdoc for more information about configuring a pulse file.

The PULSEFILE parameter can't be altered for the DBS object.

PULSEFILEPURGE { ON }
{ OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.990			OFF	OFF	ON	No

This parameter was added to support the pulse feature. It is used to indicate that AUDMON should purge the related pulse file if it already exists at startup. By default, PULSEFILEPURGE is set to OFF. To configure this, set PULSEFILEPURGE ON. The PULSEFILEPURGE parameter can't be altered after a CAPTURE command has been issued for the DBS object.

Note: That you also must configure the SBPULSEFILEPURGE TACL parameter to 1 (ON) before starting AUDMON if you set any DBS objects with PULSEFILEPURGE ON (i.e., both are required). By default this feature is turned off (value is zero). See the [*HP NonStop Shadowbase Operations Manual*](#) for details on the SBPULSEFILEPURGE TACL parameter.

PURGEDATAS { ON }
{ OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.990	5.002		OFF	OFF	ON	No

This parameter is used to define if Enscribe and SQL/MP purgedata events are to be replicated to the target. By default, this parameter is set to OFF. Set it to ON to enable the feature. The PURGEDATAS parameter can't be altered after a CAPTURE command has been issued for the DBS object.

Important note if you are using bi-directional replication and you have user exits that process SQL/MP DDL events:

Because file and table partitions may be split across multiple Consumer processes, HP Shadowbase has been enhanced to coordinate all alter, create, purge, and purgedata DDL events, such that all Consumer

processes are “drained” of events first, and then the DDL event is sent to the appropriate Consumer to be processed. After the DDL event has been processed, non-DDL replication can resume. This coordination is necessary so that events are processed synchronously in the correct sequence across multiple Consumer threads.

It is recommended that an AUDCOM SUSPENDUPD be issued before any DDL sequences that create a base file or table and then subsequently create alternate key files or indexes. The AUDCOM RESUMEUPD should be issued after the multi-step sequence is finished. This is necessary to have HP Shadowbase see the indexes and alternate key files when it processes the create event so that it can create them for the target file or table. Otherwise, it is possible that the index and alternate key files don’t get created.

If you have Enscribe or SQL/MP DDL replication operating in a bi-directional environment and you have user exits that alter, create, purge/drop, or purgedata against a target table that may be processed in the reverse direction, your user exit should be programmed using the following steps to prevent ping-pong:

1. Call the user exit SBSETDDLNOALTERS API function.
2. Call the user exit SBSETDDLALLPTNS API function.
3. For an Enscribe target, alter the audit attribute to off on the target file.
4. Call the user exit SBBEGINDDL API function.
5. Call the user exit SBSUSPENDTRANSACTION API function (sets transaction nil state).
6. Perform your custom DDL related logic.
7. Call the user exit SBRESUMETRANSACTION API function (resumes the SB transaction).
8. Call the user exit SBENDDDL API function.
9. Call the user exit SBSETIGNORE API function.

PURGEDATAOPTIONS { purgedata-option }
{(purgedata-option [, purgedata-option])}

Initial Version	Changed Version	Values Default	Value Specification	Alter
4.091	5.002	<See Below>	Valid Purgedata-Options	No

This parameter controls what action is taken when the Consumer receives a PURGEDATA event. The PURGEDATAOPTIONS allow the user to specify whether to keep or purge the data in existing Enscribe alternate key files and to specify whether the purgedata should be done for the target partition only, or for all partitions. In the case of all partitions, the purgedata is only executed if the target file or table is a primary partition.

When a program purges the contents of a file (e.g., a CONTROL(20) call, or a COBOL OPEN OUTPUT option), or when a command purges the contents of a file or table (e.g., FUP PURGEDATA or SQLCI PURGEDATA), the command may or may not specify a specific partition (e.g., PARTONLY) or it may specify the entire file (primary and secondary partitions) have its contents purged (not PARTONLY when executed against the primary partition of the source file or table). When the command is executed, the audit trail only records the fact that a specific primary or secondary partition was purgedata'd...it does not record the nature (syntax) of the original command. Hence, all HP Shadowbase receives are the specific partition purgedata events. These execution modifiers allow the user to tell HP Shadowbase how they want HP Shadowbase to implement the effects of the source command against the target file or table.

Available Purgedata Options:

KEEPALTFILES – Existing data in alternate key files on the target is kept. This applies to Enscribe files only.

PURGEDATAALTFILES – Existing alternate key files for the target file have their data (contents) purged if the target file is a primary partition (or a single partition file). The Consumer must be running on the same node as the target file in order for PURGEDATAALTFILES to function properly in all cases. This is the default if no ALTFILE option is specified. This applies to Enscribe files only.

ALLPARTS – If the target file or table is a primary partition (or a single partition file or table), its data is purged along with that of any secondary partitions of the file or table. If the target file or table is a secondary partition, the purgedata event is ignored. This is the default if no partition options specified.

PARTONLY – The target file or table has its data purged for the specified partition only. The volume names of the source and target files/tables must match to use this option.

CLOSETABLES – By default for SQL/MP alter events, the Consumer will not close its target tables before processing the PURGEDATA event. By specifying CLOSETABLES, the Consumer will close its target tables prior to replicating the purgedata against the related target table.

NODDLCOORDINATION – By default, all Consumers will complete processing of all in-progress and queued messages (“drained”) before a PURGEDATA event is processed. This is necessary for coordinating the

order of the events being processed. By specifying NODDLCOORDINATION, the Consumers will not be “drained”. The PURGEDATA event will be sent to the related Consumer in the same manner as insert, update, and delete events. Note that the coordination is controlled by the related Collector process. It “drains” all of its Consumers before sending a DDL event.

MAPTOPRIPTN – This option causes a secondary partition purgedata event to be mapped to the related primary partition for the source file and then sent to the Consumer to be applied to the target. Only a single event is selected (any other purgedata events for the other partitions are skipped). This parameter is needed in situations where a primary partition may be empty. A purgedata event is not generated if a primary partition of a file or table is empty.

PURGEOPTIONS { purge-option }
{ (purge-option [, purge-option]) }

Initial Version	Changed Version	Values Default	Value Specification	Alter
4.091	5.002	<See Below>	Valid Purge-Options	No

This parameter provides additional options when the Consumer receives a PURGE event. Prior to the availability of this parameter, if an Enscribe target for the purge event was a primary partition (including single partition files), the Consumer purged the file, and any alternate key files associated with that file. For Enscribe, the PURGEOPTIONS allows the user to specify whether to keep or purge existing alternate key files. For Enscribe files and SQL/MP tables, it allows one to specify whether the purge should be done for a specific target partition only (e.g., “PARTONLY”), or for all partitions in the target file or table. In the case of all partitions, the purge is only executed if the target file or table is a primary partition.

For PURGE event replication of partitioned files, the source file/table to target file/table mapping must be one to one, with each source primary or secondary partition file/table being mapped to its corresponding target primary or secondary partition file/table in order for purge events to be replicated properly for those files/tables. This is typically not the case for any DBS configured to replicate INSERT, UPDATE, or DELETE events for partitioned files and tables. Those events typically map all of the source file/table partitions to the target file/table primary partition, either by wildcarding the volume portion of the SOURCEFILE name, or by setting the ALLPARTITIONS DBS option to ON. Because of this, PURGE event replication for partitioned files and tables currently must be configured in a separate DBS from other I/O events.

Available Purge-Options:

KEEPALTFILES – Existing alternate key files on the target are kept (not purged). This only applies to Enscribe files.

PURGEALTFILES – Existing alternate key files for the target file is purged if the target file is a primary partition (or a single partition file). The Consumer must be running on the same node as the target file in order for PURGEALTFILES to function properly in all cases (this is the typical configuration for HP Shadowbase replication). This is the default if no ALTFILE option is specified. This only applies to Enscribe files.

ALLPARTS – If the target file or table is a primary partition (or a single partition file or table), it is purged along with any secondary partitions. If the target file or table is a secondary partition, the purge event is ignored (only the purge event against the primary partition purges the target file or table). This is the default if no partition options specified.

PARTONLY – If the target file or table is a primary partition (or a single partition file or table), it is purged along with any secondary partitions. If the target file or table is a secondary partition, only that partition is purged. The source and target file/table volume names must match to use this option. Note that this behavior mimics that of the Guardian FILE_PURGE_ call and differs from a FUP PURGE <pri part>, PARTONLY command, which only purges the primary partition. Note that you cannot do a PARTONLY purge of a SQL/MP primary partition with SQLCI. If you issue a SQLCI DROP against a secondary partitions of a SQL/MP table, all partitions are purged.

CLOSETABLES – By default for SQL/MP alter events, the Consumer will not close its target tables before processing the PURGE event. By specifying CLOSETABLES, the Consumer will close its target tables prior to replicating the purge to the related target table.

NODDLCOORDINATION – By default, all Consumers will complete processing of all in-progress and queued messages (“drained”) before an PURGE event is processed. This is necessary for coordinating the order of the events being processed. By specifying NODDLCOORDINATION, the Consumers will not be “drained”. The PURGE event will be sent to the related Consumer in the same manner as insert, update, and delete events. Note that the coordination is controlled by the related Collector process. It “drains” all of its Consumers before sending a DDL event.

PURGES { ON }
{ OFF }

Initial	Changed
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Version	Version	Values Default	Minimum	Maximum	Alter
3.943	5.002	OFF	OFF	ON	No

This parameter is used to define if Enscribe file and SQL/MP table purge events are to be replicated to the target. By default, this parameter is set to OFF. Set it to ON to enable the feature.

When a purge event is read from the audit trail and it is to be replicated, HP Shadowbase will first close the target (assuming it has it open), and then issue an Enscribe file purge or SQL/MP drop operation accordingly. In general, the purge event will attempt to remove all base file/table partitions as well as all alternate key file partitions in the target file definition. SQL/MP indexes are always dropped along with the base table.

Notes: In version 3.943, DBS parameters were added to filter file purge and create events to the Consumer's user exits. However it was up to the user to add the file create and purge logic to HP Shadowbase via user exit routines. In v4.060B, this functionality was added to the standard HP Shadowbase product.

Important Note If you are using bi-directional replication and you have user exits that process SQL/MP DDL events:

Because file and table partitions may be split across multiple Consumer processes, HP Shadowbase has been enhanced to coordinate all alter, create, purge, and purgedata DDL events, such that all Consumer processes are "drained" of events first, and then the DDL event is sent to the appropriate Consumer to be processed. After the DDL event has been processed, non-DDL replication can resume. This coordination is necessary so that events are processed synchronously in the correct sequence across multiple Consumer threads.

It is recommended that an AUDCOM SUSPENDUPD be issued before any DDL sequences that create a base file or table and then subsequently create alternate key files or indexes. The AUDCOM RESUMEUPD should be issued after the multi-step sequence is finished. This is necessary to have HP Shadowbase see the indexes and alternate key files when it processes the create event so that it can create them for the target file or table. Otherwise, it is possible that the index and alternate key files don't get created.

If you have Enscribe or SQL/MP DDL replication operating in a bi-directional environment and you have user exits that alter, create, purge/drop, or purgedata against a target table that may be processed in the reverse direction, your user exit should be programmed using the following steps to prevent ping-pong:

1. Call the user exit SBSETDDLNOALTERS API function.

2. Call the user exit SBSETDDLALLPTNS API function.
3. For an Enscribe target, alter the audit attribute to off on the target file.
4. Call the user exit SBBEGINDDL API function.
5. Call the user exit SBSUSPENDTRANSACTION API function (sets transaction nil state).
6. Perform your custom DDL related logic.
7. Call the user exit SBRESUMETRANSACTION API function (resumes the SB transaction).
8. Call the user exit SBENDDDL API function.
9. Call the user exit SBSETIGNORE API function.

Note: There is a known issue with PURGE DDL replication that may cause the target file to be purged when the source file is renamed. If the source file or table resides on a physical drive and is renamed, the Guardian OS will generate a PURGE event for the source file. If PURGE event replication is enabled for the file, HP Shadowbase will receive and process the PURGE event on the target, causing the target file or table to be purged. Currently, there is no mechanism for HP Shadowbase to distinguish between a PURGE event generated for a purge request and one generated for a rename event. We have opened a case with HP to provide a method to allow us to filter out rename PURGE events. Look for updates to this issue in future product releases.

PURGEIFEXISTS { OFF }
 { ON }

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
4.060B	5.002	OFF	OFF	ON	No

This parameter is used to indicate if a target file or table should be purged or not when the CONS is creating a new target and detects that it already exists. The default is OFF. Set it to ON to have the target purged, otherwise set it to OFF.

Note: Care should be taken when enabling this parameter. Purging an existing target file may be dangerous as that file may contain needed information, or you may have inadvertently mistyped the file names in the TARGETFILE DBS string.

RETRYDELAY seconds

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
4.070		-1	-1	32767	No

This parameter specifies the number of seconds to wait before retrying an SQL or Enscribe I/O following an error identified for retry. If set to -1 (the default), the value specified for the associated CONS object is used. The valid range is -1 to 32767. Note that this parameter can't be altered at this time.

RETRYERROR {error-number[, error-number, ...]}
 {-1}

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.070			-1			No

This parameter is related to SQL and Enscribe I/O, the RETRYERROR parameter identifies HP NonStop errors that are retried up to the current setting for the DBS or after RETRYDELAY. In some cases, SQL errors translate to HP NonStop errors that can be set to be retried. A message appears according to the retry attempt or after exceeding the number of retries. See the *HP NonStop Shadowbase Operations Manual* for list of default error numbers that can be retried. Note that -1 means undefined: the DBS specific list of errors to be retried is reset. Also, note that this parameter can't be altered at this time.

If the CONS cannot successfully complete the operation within the number of retries, it treats the failure as a fatal error. The CONS writes a message to EMS; it writes the operation to the rejects file if LOGREJECTSTOP is ON; and if SKIPFATALIOERROR is on, it continues with the next operation, otherwise, it stops.

Notes:

- 1) HP Shadowbase has built in error processing which causes a number of errors to be ignored or retried as documented in the *HP NonStop Shadowbase Operations Manual*. This list modifies the list of retried errors, it does not replace it.
- 2) This list applies to insert, update, and delete operations against files and tables, other operations such as file opens and close that may cause the same error to occur will not necessarily have the error retried.
- 3) The action taken for an error depends on which list (IGNOREERROR, RETRYERROR, STOPERROR) at which level (DBS, CONS, or default) it is found on. The evaluation is done using the following order of precedence:
 - a. First, if the error is found in a DBS specific list, the appropriate action for the list is taken.

- b. Next, if the error is found in a CONS specific list, the appropriate action for that list is taken.
 - c. Next, if the error is found in one of the default lists, the appropriate action is taken.
 - d. Finally, if the error is not on any list, it is treated as a STOPERROR.
- 4) Errors 10 (record exists) and 11 (record does not exist) are treated as special cases. Use the INSERTNOTFOUND and UPDATEDUPLICATE parameters to cause the operation to be retried in case of a conflict. If they are to be retried without the special processing, include them on the STOPERROR list and specify RETRYFILEIOERR ON.

RETRYDDLERROR {error-number[, error-number, ...]}
 {-1}

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.070			-1			No

This parameter is related to Enscribe file maintenance operations (e.g., alter, purge, and create operations), the RETRYDDLERROR parameter identifies HP NonStop errors that are retried up to the current setting for the DBS or CONS MAXRETRIES after RETRYDELAY. In some cases, SQL errors translate to HP NonStop errors that can be set to be retried. A message appears according to the retry attempt or after exceeding the number of retries. Note that this parameter can't be altered at this time.

If the CONS cannot successfully complete the operation within the number of retries, it treats the failure as a fatal error. The CONS writes a message to EMS; it writes the operation to the rejects file if LOGREJECTSTOP is ON; and if SKIPFATALDDLERROR is on, it continues with the next operation, otherwise, it stops.

RETRYFILEIOERROR {ON}
 {OFF}

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.070			OFF	OFF	ON	No

When this parameter is set to OFF (the default) and there are no other DBS extended error handling definitions, the CONS will utilize the standard CONS error handling. That is, the CONS may retry certain errors a number of times before stopping. Or, it may check the CONS STOPERROR, RETRYERROR, and IGNOREERROR parameters to determine what it should do for a given file error.

When ON and there are no other DBS extended error handling definitions, the CONS will behave as if all errors can be retried: the CONS will log an appropriate EMS message and use the DBS RETRYDELAY or FILEDDLDELAY parameter for the delay interval. It will then retry the operation up to DBS MAXRETRIES or FILEDDLRETRIES times. If the operation is ever successful, the CONS will continue with the next event. If the operation is not successful, the CONS will write the operation to the rejects file if LOGREJECTSTOP is set. If an I/O operation is not successful, the CONS will log an appropriate EMS message and stop if the DBS SKIPFATALIOERR parameter is OFF. If SKIPFATALIOERR is ON, the CONS will log an appropriate EMS message and continue with the next event. If a file maintenance (DDL) operation is not successful, the CONS will log an appropriate EMS message and stop if the DBS SKIPFATALDDLERR parameter is OFF. If SKIPFATALDDLERR is ON, the CONS will log an appropriate EMS message and continue with the next event. Note that this parameter can't be altered at this time.

ROOTPARTITION \$volume

Initial Version	Changed Version	Values Default	Value Specifications	Alter
2.000	5.000	None	Valid volume name	No

Effective with release v5.00x this parameter does not support the \NODE as part of the volume name. The \NODE will default as specified by the SET DBS SOURCEFILE parameter.

For partitioned Enscribe entry sequenced, relative, and unstructured source files, ROOTPARTITION indicates the volume on which the file's root partition resides (the "root" partition is the primary partition of the base file). This is needed because the audit trail events show the actual partition file name that an I/O occurred in, which could be the primary or a secondary partition. For Enscribe secondary partitions, there is no link back to the primary partition, and this information is needed by the HP ARLIB routines to convert the information in the audit trail event back to the absolute primary "key" of the Entry-sequenced, Relative, or Unstructured partitioned file.

\$volume must be the valid volume name where the file's primary partition is located.

Note: The root partition is required when using the HP audit reading routines to access ENTRY SEQUENCED, RELATIVE, and UNSTRUCTURED Enscribe files events, but NOT for SQL Tables - if supplied it is not used (the reason it is not needed for SQL tables is because the file label always includes a link back to the primary partition). The HP ARLIB routines internally use it to convert the record's "key" information (the "offset" from the base of the partition the event occurred in) for the audit trail event into the absolute record "key" (the record "key" from the base of the primary partition) for the file.

If the ROOTPARTITION is not supplied for a partitioned Enscribe entry-sequenced, relative, or unstructured file, and an I/O occurs to a secondary partition for that file that is to be replicated, HP Shadowbase will get an error converting the "key" for that I/O, will log an error, and then shutdown replication (usually this will be logged as a Guardian file error 23, "The disk address is out of bounds").

SBCMDFILE { ON }
 { OFF }

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
3.961	3.962	OFF	OFF	ON	No

In HP Shadowbase release 3.962, the LOADER was enhanced so that a HP Shadowbase Consumer can determine if an audit trail event was generated by the LOADER. In order for the Consumer to be able to identify LOADER events, you must add a DBS object with the SBCMDFILE parameter set to ON. The DBS SOURCEFILE parameter should be set to the file name used in the TACL parameter PARAM SBCMDFILE <file name>. A DBS TARGETFILE parameter is required. The Consumer will automatically create the TARGETFILE command file when you add the DBS object. A user exit can then call the API function SBISLOADEREVENT to identify LOADER events.

SBDATAPREFIX <prefix>

Initial Version	Changed Version	Values Default	Value Specifications	Alter
5.001		None	Prefix up to 10 chars No Trailing Underscores	No

If specified, this is the character prefix used for the HP Shadowbase well known column names. The specified prefix value is used to replace the "SHAD" portion of the well-known column names. Well-known column names will only be checked if INCLUDESBDATA is also set ON. The prefix may be a maximum of 10 characters, and trailing underscores are

not allowed (an underscore will be added automatically between the prefix and the rest of the column name).

SCREENTRANS { ON }
 { OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.700			OFF	OFF	ON	No

For bi-directional replication when set to ON, indicates that the SOURCEFILE in this DBS is a TRANSLOG file used for ping-pong elimination. The SPECTYPE of this DBS should be set to EXCLUDE.

SKIPALLKEYUPDATE { ON }
 { OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.960C			OFF	OFF	ON	No

The Consumer can be configured to disregard an SQL update statement that has no "set values". This can occur if the DBS UPDATEDUPLICATE parameter is set ON for a table that only has key columns or user exit processing results don't provide any "set values". Note that pre-3.960C versions of the Consumer will abend with an "illegal SQL syntax" EMS message if this occurs. Also, note that SQL compressed updates resulting in no "set values" are already skipped automatically by the Consumer without any warning message.

Set the DBS object parameter SKIPALLKEYUPDATE ON to enable this feature. To disable it, set SKIPALLKEYUPDATE to OFF, the default setting.

Note: If SKIPALLKEYUPDATE is ON, an SQL update statement results with no "set values", and the CONS WARNINGS parameter is set to ON, the Consumer reports an EMS warning to indicate that the event has been skipped. If this scenario occurs and SKIPALLKEYUPDATE is OFF, the Consumer reports the "illegal SQL syntax" EMS message and abend.

Note: Avoid this no "set values" anomaly by setting UPDATEDUPLICATE to OFF for tables where all of the columns are part of the primary key.

SKIPFATALIOERR { ON }
 { OFF }

Initial	Changed
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Version	Version	Values	Default	Minimum	Maximum	Alter
4.070			OFF	OFF	ON	No

This parameter defines what the CONS should do if it is unable to complete an I/O operation. When OFF, the CONS will log an appropriate error message and STOP. When ON, the CONS will log an appropriate error message and continue. Note that this parameter can't be altered at this time.

SKIPFATALDDLERR {ON}
 {OFF}

Initial	Changed	Values	Default	Minimum	Maximum	Alter
Version	Version					
4.070			OFF	OFF	ON	No

This parameter defines what the CONS should do if it is unable to complete a file maintenance (DDL) operation. When OFF, the CONS will log an appropriate error message and STOP. When ON, the CONS will log an appropriate error message and continue. The default value is ON. Note that this parameter can't be altered at this time.

SOLVMGRNAME solvmgr_name

Initial	Changed	Values	Default	Value	Specifications	Alter
Version	Version					
5.000			None	Logical SOLV MGR Name		No

When specified, this parameter identifies a DBS for inclusion into the given SOLVMGR process file set. Reference the SOLVMGR sections of this manual for further information on the SOLVMGR process type.

SOURCECAT volume.subvolume

Initial	Changed	Values	Default	Value	Specifications	Alter
Version	Version					
2.000			None	Valid subvolume Include	NODE	No

For SQL source tables, this is a secondary selection criterion. Only source table(s) registered in this catalog will be replicated.

SOURCEDICT volume.subvolume

Initial	Changed	Values	Default	Value	Specifications	Alter
Version	Version					
3.900			None	Valid subvolume Include	NODE	No

For Enscribe source files, this identifies the volume.subvolume containing the data dictionary where record descriptions will be extracted based on the SOURCEREC parameter. If omitted, the volume.subvolume specified with the DICTVOL command will be used. If the DICTVOL command has not been entered, the default volume and subvolume are used. This is required if the SOURCEREC parameter is specified.

SOURCEFILE filename

Initial Version	Changed Version	Values Default	Value Specifications	Alter
3.900		None	Valid source file selection name	No

Identifies the name of the source file(s)/table(s) to be included or excluded. Value can be the same as the destination file. If volume and subvolume are omitted, the default specified with the SOURCEVOL command is used. If the SOURCEVOL command is omitted, the default volume and subvolume are used. The filename can be a specific filename or a fileset selected by using wildcard characters. See below for more information on wildcard characters. For bi-directional replication (SCREENTRANS set to ON), the filename should indicate the name of the local TRANSLOG and the SPECTYPE of this DBS should be set to EXCLUDE.

To indicate a fileset value, the following wildcard characters may be used for volume, subvolume and filename:

- * (asterisk) matches from 0 to 8 characters in the position where it appears. For example,
 \$D*.*.TABLE1
indicates all files called TABLE1 found in all subvolumes on all volumes that begin with the letter D.
- ? (question mark) matches one character in the position where it appears. For example,
 \$D?.*.TABLE1
Indicates all files called TABLE1 in all subvolumes on all disks beginning with the letter D whose name is followed by one character (i.e., i.e., it would select \$D1, but not \$DATA1).

Prefix and suffix designators are supported for volume, subvolume and filename.

Note: If alternate keys are stored in the same volume and subvolume as the source data file, be careful when using wildcards (*) and position holders (?). Do not replicate alternate key files. Inserts and updates to the target data file (with its own alternate key files)

will cause alternate keys to be maintained automatically. Duplicate errors may result if you try to replicate alternate keys.

SOURCEFILEEXTENT <primary extent size, secondary extent size, maximum extents>

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.990		(100, 100, 160)		(2, 2, 16)	(65545, 65535, 959)	No

This parameter defines the extent size that will be used by AUDMON to create a source pulse file. The default extent size is (100,100,160). That is, the primary extent size is 100 pages, the secondary extent size is 100 pages, and the maximum number of extents allocated is 160. The valid range for the primary extent and secondary is 2 through 65535. The valid range for the maximum extents is 16 through 959. The SOURCEFILEEXTENT parameter can't be altered after a CAPTURE command has been issued for the DBS object.

Note that this parameter needs to be configured large enough to hold the pulse records that are being generated. The default extent sizes will hold about 80,000 pulses.

Old pulse records are cleaned out every PULSERETENTION days. The frequency of generating pulses (as defined by the PULSERATE parameter) and whether or not multiple Consumers are using the same pulse file, will determine the size needed (each pulse record is presently about 400 bytes).

SOURCEREC recordname

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
3.900		None		Valid Enscribe DDL record name	No

For Enscribe source files, this identifies the corresponding record name in the dictionary containing the record format to be utilized. This is an optional parameter. When replicating from Enscribe to Enscribe, SOURCEREC is always coupled with TARGETREC. Therefore, in this case, if you specify a SOURCEREC you must also specify a TARGETREC. See TARGETREC parameter below.

SOURCETYPE { ENSFIL }
{ SQLTAB }
{ * }

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
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HP NonStop Shadowbase Command Definitions
Database Specification Command Descriptions

2.000	*	Enscribe Files and SQL Tables	No
		ENSFIL - Enscribe Files	
		SQLTAB - SQL tables	

This defines the source file type as either an Enscribe file or SQL table. Entering * means all Enscribe files and SQL tables in the SOURCEVOL. The default is *.

SPECTYPE { EXCLUDE }
 { INCLUDE }

Initial Version	Changed Version	Values Default	Value Specifications	Alter
2.700		INCLUDE	INCLUDE - Selected EXCLUDE - Not Selected	No

Identifies the type of specification to which this description applies. A specification of type EXCLUDE indicates that the identified table(s)/file(s) are not to be selected. Only the source parameters are necessary to identify the table(s)/file(s) to be excluded. A specification of type INCLUDE indicates that the identified table(s)/file(s) are to be selected. Both source and destination parameters are necessary. The default is INCLUDE. For bi-directional replication (SCREENTRANS set to ON), this value should be set to EXCLUDE to prevent the TRANSLOG file used for ping pong elimination from replicating.

Note: EXCLUDE type specs take precedence over INCLUDE types.

STOPDDLERROR {error-number[, error-number, ...]}
 {-1}

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
4.070		-1			No

This parameter is related to Enscribe file maintenance operations (e.g., alter, purge, and create operations), the STOPDDLERROR parameter identifies HP NonStop errors that will cause the CONS to stop when detected. An appropriate EMS message will be logged before the CONS stops. In some cases, SQL errors translate to HP NonStop errors that can be specified. See the *HP NonStop Shadowbase Operations Manual* for list of default STOPERROR error numbers. Note that -1 means undefined: the DBS specific list of fatal DDL errors is cleared. The parameter can't be altered at this time.

STOPERROR {error-number [, error-number, ...]}
 {-1}

Initial	Changed
---------	---------

HP NonStop Shadowbase Command Definitions
Database Specification Command Descriptions

Version	Version	Values Default	Minimum	Maximum	Alter
4.070		-1			No

This parameter is related to SQL and Enscribe I/O, the STOPERROR parameter identifies HP NonStop errors that will cause the CONS to stop when detected. An appropriate EMS message will be logged before the CONS stops. In some cases, SQL errors translate to HP NonStop errors that can be specified. See the *HP NonStop Shadowbase Operations Manual* for list of default STOPERROR numbers. Note that -1 means undefined: the DBS specific list of fatal DDL errors is cleared. The parameter can't be altered at this time.

Notes:

The action taken for an error depends on which list (IGNOREERROR, RETRYERROR, STOPERROR) at which level (DBS, CONS, or default) it is found on. The evaluation is done using the following order of precedence:

- First, if the error is found in a DBS specific list, the appropriate action for the list is taken.
- Next, if the error is found in a CONS specific list, the appropriate action for that list is taken.
- Next, if the error is found in one of the default lists, the appropriate action is taken.

Finally, if the error is not on any list, it is treated as a STOPERROR.

TARGETCAT [volume.] subvolume

Initial Version	Changed Version	Values Default	Value Specifications	Alter
5.002	No	None	Valid subvolume Include NODE	

The Consumer will create SQL/MP tables for DDL replication into the catalog specified by the TARGETCAT parameter. This is required for SQL/MP DDL replication.

TARGETDICT volume.subvolume

Initial Version	Changed Version	Values Default	Value Specifications	Alter
3.900		None	Valid subvolume Include NODE	No

For Enscribe destination files, this identifies the volume.subvolume containing the data dictionary where record descriptions will be extracted based on the TARGETREC parameter. If omitted, the volume.subvolume

specified with the DICTVOL command will be used. If the DICTVOL command has not been entered, the default volume and subvolume are used. This is only needed if the TARGETREC parameter is specified.

TARGETFILE filename

Initial Version	Changed Version	Values Default	Value Specifications	Alter
3.900	4.091	None	Valid target file name Include NODE	No

Is an optional parameter that identifies the name of the destination file. If omitted and the Consumer CONNECTIONTYPE is not DIRECT and the PATHNAME is omitted, the SOURCEFILE value is used as the target. If omitted and a USEREXITID is specified or the Consumer CONNECTIONTYPE is not DIRECT, it is assumed that the TARGETFILE will be supplied by the user exit routine or is in PATHNAME. This name can be the same as the source file. If volume and subvolume are not entered, the default specified with the TARGETVOL command is used. If the TARGETVOL command is omitted, the default volume and subvolume are used. The filename can be a specific filename or a fileset selected by using wildcard characters.

Indicate a fileset in the designation of the filename by using the following wildcard characters for volume, subvolume and/or filename:

- * (asterisk) matches from 0 to 8 characters in the position where it appears. For example,

\$D*.*.TABLE1

Indicates all files called TABLE1 found in all subvolumes on all volumes that begin with the letter D

? cannot be used.

For partitioned TARGETFILES, do not indicate \$* for the volume, instead indicate the exact name of the primary partition volume. Prefix and suffix designators are supported for volume, subvolume and filename.

Notes:

- For Enscribe-to-Enscribe replication without DBS SOURCEREC and TARGETREC parameters (DDL), the Consumer will now use the minimum of the TARGETFILE record length or the audit trail event length for the target I/O. Note that if ABENDONMISMATCH is set to ON, this minimum setting is not performed and the audit trail event length is used.

- A check was added to the Consumer to make sure that a TARGETFILE is set to the primary partition of an Enscribe file during startup or if a new DBS object is added. Previously, when the TARGETFILE pointed to a secondary partition of a partitioned Enscribe file, the file system returned an error to HP Shadowbase when it tried to apply an I/O directly against the secondary partition. Release v4.092 includes a warning to the user and the CONS will now search for, and open, the primary partition of a partitioned Enscribe file when necessary.

TARGETFILEEXTENT <primary extent size, secondary extent size,
 maximum extents>

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
3.990		(100, 100, 160)	(2, 2, 16)	(65545, 65535, 959)	No

This parameter defines the extent size that will be used by AUDMON to create a target pulse file where the NonStop is a target for replication. The default extent size is (100,100,160). That is, the primary extent size is 100 pages, the secondary extent size is 100 pages, and the maximum number of extents allocated is 160. The valid range for the primary extent and secondary is 2 through 65535. The valid range for the maximum extents is 16 through 959. The TARGETFILEEXTENT parameter can't be altered after a CAPTURE command has been issued for the DBS object.

Refer to the SOURECEFILEEXT parameter for sizing this file.

The following is the syntax to set the TARGETFILEEXTENT parameter.

```
SET DBS TARGETFILEEXTENT (100, 100, 160)
                           maximum extents>
```

TARGETREC recname

Initial Version	Changed Version	Values Default	Value Specifications	Alter
3.900		None	Valid Enscribe DDL record name	No

For Enscribe destination files, this identifies the corresponding record name in the dictionary containing the record format to be utilized. This is an optional parameter. When replicating from Enscribe to Enscribe, TARGETREC is always coupled with SOURCEREC. Therefore, in this case, if you specify a SOURCEREC you must also specify a TARGETREC. See SOURCEREC parameter above.

HP NonStop Shadowbase Command Definitions
Database Specification Command Descriptions

TRACKTX { ON }
{ OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.091			ON	OFF	ON	No

This parameter is used to identify which files/tables will cause the TRACKTXFILE to be updated (if TRACKTXFILE parameter is configured with a valid filename). When set to ON, the default, a CONS will update the TRACKTXFILE during a transaction “end” if a related file/table with TRACKTX ON was part of the transaction. If none are found for a transaction, it does not cause the TRACKTXFILE to be updated. Set this to OFF for those files/tables where it is not important if events are re-sent and re-applied following a restart.

UPDATEDUPLICATE { ON }
{ OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.000			OFF	OFF	ON	No

If a HP NonStop error 10 (duplicate record) occurs during an insert and UPDATEDUPLICATE is set to ON, HP Shadowbase should process it as an update. OFF indicates that inserts should always be processed as inserts. The default is OFF.

UPDATES { ON }
{ OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
2.000			ON	OFF	ON	No

This indicates whether database updates are to be processed. The default is ON.

USEREXITID num

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.900			0	0	32767	No

This indicates which user exit routine is to be called in the Consumer to prepare the data for application to the target. Valid values are 0 through 32767. Zero (0) means that there is no user exit for the related DBS object. See the *HP Shadowbase Programming Manual* for more information on user exits.

USEREXITPREREAD { ON }
 { OFF }

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
3.940		OFF	OFF	ON	No

Set this to ON to make the target record available to the user exit. When set to ON, HP Shadowbase will read and lock the target record when UPDATES and DELETES are being replicated. A user exit can then access the data via the SBGETTARGETRECORD (for Enscribe) or SBGETSQLTARGETCOLUMN (for SQL) API functions to obtain the target record content. This is useful for certain types of live-live replication. See the *HP Shadowbase Programming Manual* for more information on user exits. By default, USEREXITPREREAD is set to OFF.

USEREXITPREREADI{ ON }
 { OFF }

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
3.961		OFF	OFF	ON	No

When set to ON, the Consumer will attempt to pre-read the target record before USRXPROCESS is called. User exits can then call the SBGETTARGETRECORD (for Enscribe) or SBGETSQLTARGETCOLUMN (for SQL) API functions to obtain the target record content for INSERT operations. See the *HP Shadowbase Programming Manual* for more information on user exits. The default for USEREXITPREREADI is OFF.

USERGETSINORDER {ON}
 {OFF}

Initial Version	Changed Version	Default Value	Minimum	Maximum	Alter
5.001		OFF	OFF	ON	No

Starting with version 5.001, a more efficient binary type lookup is used for user exit “gets” for SQL/MP and SQL/MX source tables (to get column data) when an arbitrary order is used in the user exit code for “gets”. This lookup is globally enabled (for all DBS objects) if the CONS detects any user exit doing “gets” in non-column sequence for a source table. However, some user exits are efficiently coded to do the “gets” in column sequence and it may be more efficient to use the pre-5.001 lookup. The DBS USERGETSINORDER parameter can be set to ON to have the

CONS use the old lookup mechanism, as it may be more efficient than the new binary lookup method.

USERTRACE { ON }
 { OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
3.930			OFF	OFF	ON	No

Enables or disables the user exit tracing facility. Set this parameter to ON to enable the user exit tracing facility. Set this parameter to OFF to disable the user exit tracing facility. The default is OFF. This parameter can only be altered if the Consumer is not running and the DBS has not been captured with the CAPTURE command or has been released with the RELEASE command.

Note: The Consumer parameters IOTRACE, USERTRACE, and IOTRACEFILE must also be set in order to enable the user exit tracing facility.

VERIFYSHEMA { ON }
 { OFF }

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.090			OFF	OFF	ON	No

When set to ON, this parameter will cause the Consumer to perform a schema verification during the first target file I/O. This is the same type of common column checking as performed during “check targets”. If any discrepancies are found, the Consumer will open a “xxxCHK” file and report its findings and log an EMS message indicating it found a potential issue. The default for the VERIFYSHEMA parameter is ON. Additionally, if the CONS CHECKTARGETS parameter is set to ON and one uses the SBCHKTRGATSTART TACL parameter to have the Consumer perform “check targets” at startup, schemas will be checked for any DBS objects that have VERIFYSHEMA set to ON.

VIEWNAME filename

Initial Version	Changed Version	Default Value	Value Specifications	Alter
5.001		None	SQL/MP viewname (fully qualified, include Expand node)	No

VIEWNAME specifies the SQL/MP replication view name used to define the target table structure and column mapping from source to target when replicating to Open systems. It is set to the fully-qualified view name.

For more information on using views in replication, please review the **‘VIEWNAME Usage Considerations’** section in the *HP NonStop Shadowbase Operations Manual* on how to properly configure this parameter for HP Shadowbase replication.

SHOW DBS Command

The SHOW DBS command displays the current values set for the database specification attributes. The syntax is:

```
SHOW [ / OUT list_file / ] DBS
```

OUT list_file

This directs listing output to a named file. If this option is omitted, listing output is directed to the AUDCOM list file; this is typically the home terminal.

```
DBS OBJECT SETTINGS:
  ABENDONMISMATCH OFF
  ACTIVETARGET OFF
  ALLOWQUEUEFILE OFF
  ALLPARTITIONS OFF
  ALLUPDATES ON
  ALTEROPTIONS ([NOCLOSETABLES, COORDINATION])
  ALTERS OFF
  AUDITDELETES OFF
  BASE24HANDLERID 0
  BEFOREVALUES OFF
  COLLISIONHANDLER 0
  CONSNAME ?
  CONTROLTABLEEXT ?
  CONTROLTABLEEXT1 ?
  CONTROLTABLEEXT2 ?
  CONTROLTABLEEXT3 ?
  CONTROLTABLELOCK OFF
  CREATEOPTIONS (RECREATEALTFILES, PARTITIONS, ALTFILEMAPPING [,
NOCLOSETABLES, COORDINATION])
  CREATES OFF
  DELETES ON
  DELUIDXDUP OFF
```

HP NonStop Shadowbase Command Definitions

Database Specification Command Descriptions

```

DOIFNOAUDATSTART CONTINUE
DOIFNOSRCATRUN WARN1ST
DOIFNOSRCATSTART CONTINUE
DOIFNOTRGATRUN WARN1ST
DOIFNOTRGATSTART CONTINUE
DTSEPARATORVAL " "
DTSOURCEFORMAT OFF
ENTRYSEQEXACT (OFF)
EXTENDINSERT OFF
EXTENDUPDATE OFF
FETCHSOURCE (OFF)
FILEDDLDELAY ?
FILEDDLRETRIES 3
FIXUPDECIMAL ABEND
HADWLOGEVENTS OFF
HADWLOGREJECT OFF
HADWLOGSAME OFF
HADWSKIPSAME OFF
IGNOREDDLERROR ( ? )
IGNOREERROR ( ? )
INCLUDESBDATA OFF
INSERTNOTFOUND OFF
INSERTS ON
KEEPLONGERRECORD OFF
KEEPOPEN OFF
KEYSPECIFIER ?
LOGREJECTIGNORE OFF
LOGREJECTSTOP OFF
MAPFROMSOURCE OFF
MAPTOFILE ?
MAPTOTEMPLATE OFF
MAXRETRIES -1
MXPARTNAMES ?
MXPATHNAME ?
MXSOURCETABLE ?
MXTARGETTABLE ?
ORDERCOLSFORDEL OFF
PATHNAME ?
PULSEFILE OFF
PULSEFILEPURGE OFF
PURGEDATAOPTIONS (PURGEDATAALTFILES, ALLPARTS [, NOCLOSETABLES,
COORDINATION, NOMAPTOPRIPTN])
PURGEDATAS OFF
PURGEIFEXISTS OFF
PURGEOPTIONS (PURGEALTFILES, ALLPARTS [, NOCLOSETABLES, COORDINATION])
PURGES OFF
RETRYDDLERROR ( ? )
RETRYDELAY ?
RETRYERROR ( ? )
RETRYFILEIOERROR OFF
ROOTPARTITION ?
SBCMDFILE OFF
SBDATAPREFIX ?
SCREENTRANS OFF
SKIPALLKEYUPDATE OFF
SKIPFATALDDLERR ON
SKIPFATALIOERR OFF
SOLVMGRNAME ?
SOURCECAT ?
SOURCEDICT ?
SOURCEFILE ?
SOURCEFILEEXTENT ( 100, 100, 160 )
SOURCEREC ?

```

HP NonStop Shadowbase Command Definitions

Database Specification Command Descriptions

```
SOURCETYPE *
SPECTYPE INCLUDE
STOPDDLERROR ( ? )
STOPERROR ( ? )
TARGETCAT ?
TARGETDICT ?
TARGETFILE ?
TARGETFILEEXTENT ( 100, 100, 160 )
TARGETREC ?
TRACKTX ON
UPDATEDUPLICATE OFF
UPDATES ON
USEREXITID 0
USEREXITPREREAD OFF
USEREXITPREREADI OFF
USERGETSINORDER OFF
USERTRACE OFF
VERIFYSHEMA ON
VIEWNAME ?
```

Queue Manager Command Descriptions

Queue Manager commands are associated with the definition and control of Queue Managers in a HP Shadowbase system. A Queue Manager is an optional component of a HP Shadowbase replication system that buffers and stores messages from the Collector to a Consumer on disk in a First In – First Out (FIFO) queue. It provides several benefits within a replication system:

- During a restart, it reduces the amount of data that must be read from the audit trail. Data that was sent during the previous run and stored in the queue is resent directly from the queue. If the Queue Manager is configured to run on the target system, the restart data is sent directly to the Consumer, reducing network traffic.
- By saving the data on the target system, the Queue Manager will reduce the amount of data lost if the source system fails and cannot be recovered.
- It prevents delays in the Collector reading and sending audit data when a Consumer lags. The messages are buffered and written in large blocks to unstructured files by the Queue Manager, allowing the Collector to run at essentially full speed. A slow Consumer associated with a Queue Manager does not impact the Collector. Without a Queue Manager, a multi-threaded Collector can only run as fast as the slowest Consumer.
- It allows the Consumer to be taken offline without taking the associated Collector offline. This is particularly important in a multi-threaded replication environment, where one Collector may be feeding multiple Consumers.

Commands are available to add and delete Queue Managers; to start and stop Queue Managers; to configure Queue Managers by setting and modifying attributes; and to display information and operating status. These commands are described below.

ADD QMGR Command

The ADD QMGR command enters a description of a Queue Manager into the HP Shadowbase configuration. This command is entered after the appropriate SET commands for the Queue Manager have been issued. The syntax is:

```
ADD [ QMGR ] [<audmon_name>.]qmgr_name
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the QMGR will be added to the currently opened audmon process.

qmgr_name

Is the logical name of the Queue Manager; the name can have from one to 16 alphanumeric or hyphen characters. It must start with a letter and must be unique within the HP Shadowbase system. The qmgr_name identifies the Queue Manager within the HP Shadowbase system. It is used to associate the Queue Manager with the appropriate Consumer, for example, using the `SET CONS QMGRNAME qmgr_name` parameter.

CLEARTX QMGR Command

The CLEARTX QMGR command will cause a QMGR to remove a transaction from its internal transaction tracking list and can be used regardless of a transaction's status in TMF.

USE THIS COMMAND VERY CAUTIOUSLY, ONLY AFTER CONSULTATION WITH HP SHADOWBASE SUPPORT, AS IT COULD LEAVE ACTIVE TRANSACTIONS IN TMF FOR A CONS (AND THESE ACTIVE TRANSACTIONS MAY EVENTUALLY BE AUTOMATICALLY ABORTED BY TMF ON THE TARGET SYSTEM, REGARDLESS OF THE EVENTUAL END STATE OF THE ORIGINAL TRANSACTION ON THE SOURCE SYSTEM). USE OF THIS COMMAND MAY RESULT IN TARGET DATABASE INCONSISTENCIES WITH THE SOURCE DATABASE.

The syntax for CLEARTX QMGR is as follows.

```
CLEARTX [ QMGR ] <qmgrname>, TRANSID <num>
```

The <qmgrname> is the name of the QMGR object that is tracking the transaction. The TRANSID can be entered in external or internal form and must be a transaction that is active in the QMGR's internal tracking list. It is the original audit trail transaction identifier that was captured by the COLL, not the CONS's replication transaction identifier for the TMF transaction it starts. Use DUMPTX to see the transaction list or INFOTX to see the detailed information for this specific transaction. Note that you will be prompted to confirm this command. If the transaction is still active in TMF, you will be prompted two times.

DELETE QMGR Command

The DELETE QMGR command removes a Queue Manager from the HP Shadowbase system. A Queue Manager must be stopped before it can be deleted. The syntax is:

```
DELETE [ QMGR ] [<audmon_name>.] qmgr_name
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the QMGR will be deleted from the currently opened audmon process.

Qmgr_name

Is the logical name of the Queue Manager to be deleted.

DRAIN QMGR Command

The DRAIN QMGR command has been added in order to specify the behavior of the QMGR and its attached Consumer on the fly following AUDMON failure. This command may only be used for QMGRs with ABNORMALSHUTDOWN set to DRAINPAUSE, which also requires the configuration of a TIDFILE for the attached CONS. The syntax for the DRAIN command is as follows:

```
DRAIN [QMGR] <qmgr-process-name> { , ABORT }  
                                     { , COMMIT }  
                                     { , STOP }
```

When the ABORT option is specified, the QMGR drains its queue, aborting any transactions still in progress at the end of the queue, and then shutdown. This is analogous to the QMGR ABNORMALSHUTDOWN DRAINSTOP setting.

When the COMMIT option is specified, the QMGR drains its queue, committing any transactions still in progress at the end of the queue, and then shuts down. Upon restart, the CONS uses its TIDFILE to determine any necessary corrective measures if the source transactions aborted rather than committed (this processing is similar to the “precommit” logic processing the CONS does when it enters certain RESOLVELOCKS scenarios).

When the STOP option is specified while the QMGR is draining its queue, the QMGR and CONS stops draining and shuts down immediately.

DUMPTX QMGR Command

DUMPTX QMGR can be used to request a listing of transactions being tracked by a QMGR. The command syntax for the DUMPTX QMGR command is as follows:

```
DUMPTX /OUT <listfile>/ {[QMGR] { <qmgrname> }  
                        [,LISTCOUNT <num>] [,RESET]  
  
                        {[QMGR] { * }  
                        [,LISTCOUNT <num>] [,RESET]
```

DUMPTX can be requested for a specific QMGR object by specifying its name or for QMGR objects by specifying *. LISTCOUNT is used to control the maximum number of transactions in the list. By default, all of the transactions will be output. The OUT file is where the output will be displayed, and could be a spooler location, terminal name (including the home terminal where AUDCOM is running), or a disk file name. If the OUT file is not specified, output will be sent to the AUDCOM's home terminal. RESET will cause the OUT file to be cleared by the first process outputting to it (e.g., when a disk file is being re-used for output). If a disk file name is specified, the file is created as a type 101 edit file. Note that if an unstructured file is pre-created, it must be created with the ODDUNSTR attribute enabled.

Note that large dumps can suspend processing of the QMGR process while the output is being generated, so use this command sparingly, generally only at the request of HP Shadowbase Support. Before entering this command, one should have an idea how large the transaction list might be. This can be determined by checking the transaction busy counters in the STATS QMGR output.

The information output for the transactions generally identifies timestamps, audit trail positional information, the current state of the transaction, the transaction that is associated with the CONS's restart point, as well as the location of the transaction's event in the local queue. State and other internal information is also displayed that might be needed by HP Shadowbase Support for trouble-shooting any potential questions or issues associated with HP Shadowbase's transaction tracking.

Sample output for is shown below:

HP NonStop Shadowbase Command Definitions

Queue Manager Command Descriptions

```
+dumptx qmgr *
QMGR DUMPTX TRANSACTION TRACKING DETAIL AT 03/02/2010 12:40:31 :
```

```
=====
NAME: QMGR01  PROCESS: \H1.$JHQM1  AUDMON: \H1.$JHMON
```

```
TRANS BUSY: 2
CUR MAT: AA000680  RBA: 69890336
CONS: CONS01
```

```
-----
TRANS 1 OF 2  ***RESTART POINT TRANSACTION***
```

```
ADT TRANSID:      \H1(3).0.30535301 / 288232377313198083
BEGIN EVENT INFO:
  ADT TS (MAT):    03/02/2010 12:40:24,163087  DIFF: 00:00:07.702030
  RECEIVED TS:    03/02/2010 12:40:24,440432  DIFF: 00:00:07.424685
  SENT TS:        03/02/2010 12:40:30,275315  DIFF: 00:00:01.589802
  MAT SEQ/RBS:    680/67927208
  AUX ID/SEQ/RBA: BB/963/103870540
  QUEUE SEQ/RBA:  9187/8935042
LAST ADT EVENT INFO:
  EVENT TS:       03/02/2010 12:40:25,044856  DIFF: 00:00:06.820261
  RECEIVED TS:    03/02/2010 12:40:25,373529  DIFF: 00:00:06.491588
  SENT TS:        03/02/2010 12:40:31,835618  DIFF: 00:00:00.029499
  MAT SEQ/RBS:    680/69890336
  AUX ID/SEQ/RBA: BB/963/109144200
  QUEUE SEQ/RBA:  9188/986514
STATE:           ACTIVE
```

```
-----
TRANS 2 OF 2
```

```
ADT TRANSID:      \H1(3).1.23442491 / 288513387455512579
BEGIN EVENT INFO:
  ADT TS (MAT):    03/02/2010 12:40:24,964863  DIFF: 00:00:06.900254
  RECEIVED TS:    03/02/2010 12:40:25,197518  DIFF: 00:00:06.667599
  SENT TS:        03/02/2010 12:40:31,702520  DIFF: 00:00:00.162597
  MAT SEQ/RBS:    680/69871048
  AUX ID/SEQ/RBA: BB/963/108583012
  QUEUE SEQ/RBA:  9188/687502
LAST ADT EVENT INFO:
  EVENT TS:       03/02/2010 12:40:25,009759  DIFF: 00:00:06.855358
  RECEIVED TS:    03/02/2010 12:40:25,266532  DIFF: 00:00:06.598585
  SENT TS:        03/02/2010 12:40:31,774485  DIFF: 00:00:00.090632
  MAT SEQ/RBS:    680/69871124
  AUX ID/SEQ/RBA: AA/680/69871124
  QUEUE SEQ/RBA:  9188/836840
STATE:           COMMIT SENT
=====
```

INFO QMGR Command

The INFO QMGR command displays the current values for the attributes of the specified Queue Manager or all Queue Managers for a replication environment. The syntax is:

```
INFO [ / OUT list_file / ] [ QMGR ] { [<audmon_name>.]coll_name }
                                         { [<audmon_name>.*] }
```

OUT list_file

HP NonStop Shadowbase Command Definitions

Queue Manager Command Descriptions

This directs listing the output to a named file. If this option is omitted, listing output is directed to the AUDCOM list file; this is typically the home terminal.

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

qmgr_name

Is the logical name of a previously defined Queue Manager.

*

This displays the current values for the attributes for all Queue Managers in the HP Shadowbase system.

An example of the results of doing an INFO QMGR command is shown below:

```
HP SHADOWBASE VERSION INFO - V5010F - (17JAN11)
QMGR QMGR01 OBJECT SETTINGS (AUDMON \H1.$JHMON):
  ABNORMALSHUTDOWN DRAINSTOP
  BACKUPCPU 0
  CHKPTDELAY 500
  CHKPTTIME 300
  CHKPTWARNRATE 900
  CHKPTWARNTDIFF 7200
  COLLNAME COLL01
  CPU 1
  CPULIST ( ? )
  DEBUG ONSTART
  FAILMAX 1
  FAILRETRYDELAY 30
  FAILSPAN 60
  MAXCONSWRITES 15
  MEASURE OFF
  PRI 125
  PROCESS \H1.$JHQM1
  PROGRAM \H1.$JRH.SBTEST.AUDQMGR
  QBUFFEREDIO OFF
  QFILEEXTENT ( 84, 84, 64 )
  QFILEPREFIX AA
  QFILESECURITY NNNN
  QFILESPELVOLUME 10
  QFLUSHDELAY 5
  QFLUSHLIMIT 100
  QMSGCACHESIZE 10
```

HP NonStop Shadowbase Command Definitions

Queue Manager Command Descriptions

```
QPREALLOCATE OFF
QREADAHEAD 4
QSUBVOLUME JHQFILES
QVOLUMES ($DATA2,$DATA1)
QWRITEQUEDEPTH 2
RESTARTFILE \H1.$JRH.RESTART.AUDQMGR
TRACE OFF
TRACEFILE \H1.$JRH.LOG.QMTRAC
```

INFOTX QMGR Command

INFOTX QMGR can be used to request a listing of a specific transaction that is currently being tracked by a QMGR. The command syntax for the INFOTX command is as follows:

```
INFOTX [ /OUT <listfile>/ ] [ QMGR ] {[<audmon-name>.<qmgrname>},
,TRANSID <num>
```

INFOTX must be requested for a specific QMGR object by specifying its name. The OUT file is where the output will be displayed and is optional. This could be a spooler location, terminal name (including the home terminal where AUDCOM is running, or a disk file name. The home terminal is used when the OUT file is not entered. If a disk file name is specified, the file is created as a type 101 edit file. Note that if an unstructured file is pre-created, it must be created with the ODDUNSTR attribute enabled.

The entered TRANSID can be supplied in either external or internal format.

The output for INFOTX is similar to the DUMPTX output, except that a single transaction is displayed.

The following is a sample of the INFOTX output for a QMGR process:

```
+INFOTX QMGR QMGR01, TRANSID \H1(3).1.23448376
QMGR INFOTX TRANSACTION TRACKING DETAIL AT 03/02/2010 12:56:02 :
=====
ADT TRANSID:          \H1(3).1.23448376 / 288513387841191939
BEGIN EVENT INFO:
  ADT TS (MAT):        03/02/2010 12:52:46,446414   DIFF: 00:03:15.784431
  RECEIVED TS:         03/02/2010 12:52:46,685280   DIFF: 00:03:15.545565
  SENT TS:             03/02/2010 12:52:57,463148   DIFF: 00:03:04.767697
  MAT SEQ/RBS:         683/268235884
  AUX ID/SEQ/RBA:      BB/966/321579156
  QUEUE SEQ/RBA:       9282/5034586
LAST ADT EVENT INFO:
```

HP NonStop Shadowbase Command Definitions

Queue Manager Command Descriptions

```
EVENT TS:          03/02/2010 12:52:47,348395  DIFF: 00:03:14.882450
RECEIVED TS:       03/02/2010 12:52:49,507857  DIFF: 00:03:12.722988
SENT TS:           03/02/2010 12:52:59,780058  DIFF: 00:03:02.450787
MAT SEQ/RBS:       683/270542892
AUX ID/SEQ/RBA:    BB/966/329562908
QUEUE SEQ/RBA:     9282/9676840
STATE:             ACTIVE
=====
```

OBEYFORM QMGR Command

The OBEYFORM QMGR command displays the parameter values in the SET command format for the QMGR object. The syntax is:

```
OBEYFORM [/OUT <listfile>/] [QMGR] { [<audmon_name>.<qmgr_name> }
                                         { [<audmon_name>.* } }
```

listfile

Is the name of a file to receive the output. listfile can be an edit file that can subsequently be edited for use.

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

qmgr_name

Is the logical name of a previously defined Queue Manager.

*

This displays the current values for the attributes for all Queue Managers in the HP Shadowbase system.

Note: Parameters that do not have values set are commented out.

An example of the results of doing an OBEYFORM QMGR command is shown on the below:

```
+obeyform QMGR $AUDM.QMGR01
.
[BEGIN OBEYFORM OUTPUT AT 2010-03-03:10:05:14]

[QMGR QMGR01 OBJECT SETTINGS (AUDMON \H1.$AUDM):]
  RESET QMGR
```

HP NonStop Shadowbase Command Definitions

Queue Manager Command Descriptions

```
SET QMGR ABNORMALSHUTDOWN DRAINSTOP
SET QMGR BACKUPCPU 0
SET QMGR CHKPTDELAY 500
SET QMGR CHKPTTIME 300
SET QMGR CHKPTWARNRATE 900
SET QMGR CHKPTWARNTDIFF 7200
SET QMGR COLLNAME COLL01
SET QMGR CPU 1
[SET QMGR CPULIST ( ? )]
SET QMGR DEBUG ONSTART
SET QMGR FAILMAX 1
SET QMGR FAILRETRYDELAY 30
SET QMGR FAILSPAN 60
SET QMGR MAXCONSWRITES 15
SET QMGR MEASURE OFF
SET QMGR PRI 125
SET QMGR PROCESS \H1.$QMGR1
SET QMGR PROGRAM \H1.$DATA.SBTEST.AUDQMGR
SET QMGR QBUFFEREDIO OFF
SET QMGR QFILEEXTENT ( 84, 84, 64 )
SET QMGR QFILEPREFIX AA
SET QMGR QFILESECURITY NNNN
SET QMGR QFILESPERVOLUME 10
SET QMGR QFLUSHDELAY 5
SET QMGR QFLUSHLIMIT 100
SET QMGR QMSGCACHESIZE 10
SET QMGR QPREALLOCATE OFF
SET QMGR QREADAHEAD 4
SET QMGR QSUBVOLUME JHQFILES
SET QMGR QVOLUMES ($DATA2,$DATA1)
SET QMGR QWRITEQUEDEPTH 2
SET QMGR RESTARTFILE \H1.$DATA.RESTART.AUDQMGR
SET QMGR TRACE 0
SET QMGR TRACEFILE \H1.$DATA.LOG.QMTRAC
ADD QMGR QMGR01
```

[END OBEYFORM OUTPUT AT 2010-03-03:10:05:14]

RESET QMGR Command

The RESET QMGR command resets a Queue Manager parameter from the currently set value to the default value. The syntax is:

```
RESET [ QMGR ] [ qmgr_parameter [ , qmgr_parameter ] ... ]
```

qmgr_parameter options can be found in the SET QMGR section.

If qmgr_parameter is omitted, values for all parameters are reset.

This command is typically issued between groups of SET/ADD QMGR descriptions. The command does not affect any Queue Manager definition already established with an ADD QMGR command.

Some parameters are required and have no default values. If a required parameter is included in the RESET QMGR command, the parameter is set to a null value; the parameter must be specified again before adding another Queue Manager description.

RESUME QMGR Command

The RESUME QMGR command places a suspended Queue Manager into run state. The syntax is:

```
RESUME  [ QMGR ]  { [<audmon_name>.] qmgr_name }  
                  { [<audmon_name>.*] * }
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

qmgr_name

This resumes execution of the named Queue Manager.

*

This resumes execution of all suspended Queue Managers in the HP Shadowbase system.

SET QMGR Command

The SET QMGR command establishes values for the attributes of a Queue Manager.

In each description, there is a version box. This box contains information, as in the samples below.

<u>Initial</u> <u>Version</u>	<u>Changed</u> <u>Version</u>	<u>Values Default</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Alter</u>
1.000	2.700	30	1	32767	Yes

HP NonStop Shadowbase Command Definitions

Queue Manager Command Descriptions

<u>Initial Version</u>	<u>Changed Version</u>	<u>Values Default</u>	<u>Value Specifications</u>	<u>Alter</u>
2.000		None	Valid MAT full filename Partial file name up to the AA prefix -1 to reset	No

To know if your version of HP Shadowbase can use the parameter, the first column titled 'Initial Version', is for when the parameter was first introduced. The next column is for if and when the parameter was last changed. If the parameter has a last changed version then the values in the columns following, are as of that version. The next column provides the default value. Next is provided, either the minimum to maximum values, or the listed value specifications. The value in the last column, titled 'Alter', is set to 'Yes' for those parameters that can be altered while running. If the value under 'Alter' is 'No' then these parameters cannot be altered once the Queue Manager is started.

The syntax is:

```
SET [ QMGR ] qmgr_parameter [ , qmgr_parameter ] ...
```

qmgr_parameter is one of the following:

ABNORMALSHUTDOWN {DRAINSTOP}
 {DRAINPAUSE}
 {STOP}

<u>Initial Version</u>	<u>Changed Version</u>	<u>Values Default</u>	<u>Value Specifications</u>	<u>Alter</u>
4.092		DRAINSTOP	Valid Action	No

This parameter is used to control the behavior of the QMGR and its attached Consumer in the event of AUDMON failure. When set to DRAINSTOP, the QMGR and attached CONS drains as much of the queue as possible and then shutdown. Any transactions still in progress at the end of the queue are aborted. In the case of DRAINPAUSE, the QMGR and CONS continue draining the queue and then pause until a DRAIN command (described below) is received. In order to configure ABNORMALSHUTDOWN to DRAINPAUSE, a TIDFILE must be configured for the attached CONS. When set to STOP, the QMGR and its attached CONS immediately shutdown upon detecting a failure of AUDMON. The default value is DRAINSTOP.

BACKUPCPU num

HP NonStop Shadowbase Command Definitions
Queue Manager Command Descriptions

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
4.090			None	Valid CPU number	No

Specifies the number of the CPU to be used as a backup for the Queue Manager (which means the Queue Manager will run as a persistent process). The CPU for the value entered must exist on the system. If the AUD object AUTORESTART parameter is set to ON and the Queue Manager fails due to a CPU failure, AUDMON will restart the Queue Manager in the BACKUPCPU.

The default is no value assigned, meaning the Queue Manager does not run as a persistent process (if its primary CPU fails, it will not be restarted in another CPU). Note that this parameter is ignored if the CPULIST parameter is specified.

CHKPTWARNRATE number_of_seconds

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.090			900	0	32767	Yes

This defines the time that the Queue Manager is to wait before outputting an EMS message to indicate that the Queue Manager's restart position for the Consumer is lagging behind. The valid range is 0 through 32767 seconds. The default is 900 (15 minutes). If the Queue Manager lags behind and an EMS message is issued and then it catches back up and then lags behind again shortly thereafter, it won't issue another behind EMS until CHKPTWARNRATE time has passed by.

CHKPTWARNTDIFF number_of_seconds

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.090			8100	0	disable	32767 Yes

This is the lag time used by the Queue Manager to determine if the restart position is lagging behind the current audit trail read position. The restart position is determined to be lagging behind if the difference between the time of last read audit trail record and the time of the current audit trail restart position is equal to or greater than CHKPTWARNTDIFF. Setting the parameter to 0 will disable the check.

Note: Long-running transactions could result in EMS messages being issued if the CHKPTWARNTDIFF is set lower than the time it takes for the transaction to complete.

COLLNAME coll_name

HP NonStop Shadowbase Command Definitions

Queue Manager Command Descriptions

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
4.090			None	Valid COLL OBJECT Name	No

Is the name of the Collector to which this Queue Manager is attached. This is a required parameter when a QMGR is configured, and must contain a valid logical (ie add COLL <collname>) COLLECTor name

CPU cpu_number

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
4.090			None	Valid CPU number	No

Specifies the processor where the Queue Manager runs. Note that this parameter is ignored if CPULIST is specified instead.

CPULIST { (cpu_number, cpu_number) }
{ (-1) }

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
4.090			-1	Valid CPU number	No

This parameter specifies a list of processors to be used for starting the Queue Manager. Up to 16 can be specified (0 through 15). The order of usage is the order of in the list list. If a processor is not available, the next in the list will be tried. Note that when the CPULIST is specified, the Queue Manager's CPU and BACKUPCPU parameters will not be considered. An EMS message will be logged to indicate if a problem occurred attempting to use a processor in the list. An EMS message will be logged to indicate which processor is used. The default is nil (-1), meaning to use the values of the CPU and BACKUPCPU parameters.

Note: The list must enclosed in parentheses, even if just one value is provided.

DEBUG { OFF }
{ ONSTART }
{ ONERROR }

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
4.090			OFF	ONSTART ONERROR	No

Specifies whether a Queue Manager enters debug mode and under what condition. Generally, this should only be set when HP Shadowbase instructs you to do so for diagnosing problems.

HP NonStop Shadowbase Command Definitions

Queue Manager Command Descriptions

OFF the Queue Manager does not enter debug mode.
ONSTART the Queue Manager enters debug mode on start-up.
ONERROR the Queue Manager enters debug mode on an abnormal event.

If omitted, the default is OFF.

FAILMAX number_of_failures

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.090		0	indefinite	0	128	No

This specifies the maximum number of failures of a Queue Manager allowable within the FAILSPAN period. If the AUD parameter AUTORESTART is set to ON and FAILMAX is set to 0, the restart attempts will continue indefinitely. Otherwise, AUDMON will attempt to restart FAILMAX number of times within the FAILSPAN. Valid values are 0 through 128. A value of 1 disables the restart capability.

FAILRETRYDELAY seconds

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.090		15		1	3600	No

Specifies the number of seconds AUDMON will delay between restart attempts when the AUDMON AUTORESTART parameter is set to ON and FAILMAX is set to 0 or greater than 1. The default is 15 seconds. Valid values are 1 through 3600.

FAILSPAN seconds

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.090		900		0	32767	No

Specifies the span of time over which AUDMON will attempt to automatically restart failed processes when the AUD AUTORESTART parameter is set to on and FAILMAX is set greater than 1. The default is 900 seconds (15 minutes). Valid values are 0 through 32767.

MAXCONSWRITESnumber

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.090		15		1	15	No

HP NonStop Shadowbase Command Definitions
Queue Manager Command Descriptions

Is the maximum number of simultaneous interprocess messages I/Os that can be outstanding to a Consumer (using Guardian “nowaited” I/O). This number can be from 1 to 15 (15 is the largest Guardian nowaited I/O depth). The default is 15, which means that up to 15 messages can be sent to the Consumer before receiving a reply.

To take advantage of asynchronous communication replicating to an HP Shadowbase Other Servers, this parameter should be set greater than 1, and the CONS NETBUFFERS parameter should be increased accordingly. (See SET CONS NETBUFFERS for more information on asynchronous communication.)

PRI number

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.090			None	1	199	No

Is the priority at which the Queue Manager runs. The number can be from 1 to 199. If this parameter is omitted, the default is a priority of 20 less than the priority of AUDMON.

PROCESS [\system.] \$qmgr_name

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
4.090			None	Valid process name (include NODE)	No

This required parameter is the process name of the Queue Manager.

PROGRAM [\system.\$volume.subvolume] filename

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
4.090			Current Subvolume	Valid program file name	No

Is the name of the Queue Manager object file. Unless otherwise specified, the volume and subvolume name used will be the same as the location of the object file for AUDMON. The standard, installed name for the Queue Manager object file is AUDQMGR.

QBUFFEREDIO {ON}
 {OFF}

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.090			OFF	OFF	ON	No

This parameter specifies whether buffered I/O is used when writing to the queue files. If set ON, the writes are buffered in the disk cache. If set off, the write-thru-cache option is used to write the data to the disk. Tests have shown that higher throughput is attained using buffered I/O, however, since the QMGR is continuously writing at the end of the file, each write requires new disk cache. If the disk is dedicated to the queue file storage, buffered I/O is recommended. If the disk is used for other purposes, buffered I/O may impact the performance of the other applications by using up the disk cache.

QFILEEXTENT (primary_extent, secondary_extent, maximum_exts)

Initial Version	Changed Version	Values Default	Value Specifications	Alter
4.090		4000,400,128	2,2,16 - 65535,65535,959	No

This parameter defines the extent size that will be used by the Queue Manager when creating its data files for the queue. The default extent size is (400, 400,128). That is, the primary extent size is 400 pages, the secondary extent size is 400 pages, and the maximum number of extents allocated is 128. The valid range for the primary extent and secondary is 2 through 65535. The valid range for the maximum extents is 16 through 959. The minimum size of the file is 57,344 bytes.

QFILESPERVOLUME number

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
4.090		3	1	100	No

Is the number of files the Queue Manager will create on each volume specified by the QVOLUMES parameter. The total number of files created by the Queue Manager is the number of volumes specified in QVOLUMES times the QFILESPERVOLUME. The default is to create three per volume. There must be at least two queue files configured – either the QFILESPERVOLUME must be 2 or greater or there must be two volumes configured.

QFILEPREFIX filename_prefix

Initial Version	Changed Version	Values Default	Value Specifications	Alter
4.090		None	A two character prefix for the queue file names.	No

This is a required parameter. It is the two character prefix for the queue filenames. Queue filenames are built from the volume name (specified by the QVOLUMES parameter), the subvolume name (specified by the

QSUBVOLUME parameter), the file prefix (this parameter), and a 6 digit number. For example, assume the following settings:

```
QFILESPERVOLUME 2
QFILEPREFIX ZZ
QSUBVOLUME QFILES
QVOLUMES ($DATA1, $DATA2)
```

The initial queue file names would be:

```
$DATA1.QFILES.ZZ000001
$DATA2.QFILES.ZZ000002
$DATA1.QFILES.ZZ000003
$DATA2.QFILES.ZZ000004
```

QFILESECURITY security_string

Initial Version	Changed Version	Values Default	Value Specifications	Alter
4.090	4.092	"UUUU"	Guardian security string	No

This parameter defines the security setting for the queue files using the Guardian RWEF string. The default setting secures all access to the files to the user to allow network access without encountering a Guardian security error 48.

QFLUSHDELAY seconds

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
4.090		300	0	32767	No

This parameter is the length of time, in seconds, the Queue Manager waits before flushing data to disk and saving the restart file information. A value of 0 means that time-based flushing is disabled. The default value is 5 minutes.

Note that there are other factors that may cause the data to be flushed and the restart file written. This also occurs when the flush limit (specified by QFLUSHLIMIT) of messages is exceeded. Flushing also occurs whenever a file is filled, becomes available because the Consumer's restart point has moved beyond the end of the file, or when the Queue Manager is shutdown.

More frequent flushing will mean less data to be resent on startup at the expense of additional I/Os to the disk.

QFLUSHLIMIT <number>

HP NonStop Shadowbase Command Definitions
Queue Manager Command Descriptions

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.090			40	0	32767	No

This is the number of messages the Queue Manager can receive from the Collector prior to flushing data to disk and saving the restart file information. If QFLUSHLIMIT is set to 0, message-counted flushing is disabled.

Note that there are other events which may cause the data to be flushed to disk and the restart file written. This also occurs if the flush delay (number of seconds between flushing) specified by QFLUSHDELAY is exceeded. Flushing also occurs whenever a file is filled, becomes available because the Consumer's restart point has moved beyond the end of the file, or when the Queue Manager is shutdown.

More frequent flushing will mean less data to be resent on startup at the expense of additional I/Os to the disk.

QMSGCACHESIZE <number>

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.090			500	3	32767	No

Is the number of messages from the Collector that Queue Manager keeps in memory in its internal cache. When the Consumer is ready to accept a message from the Queue Manager, the Queue Manager will check its internal cache to see if the next message is there. If it is, the message can be sent without reading from disk. Ideally, this parameter should be set high enough to allow most messages to be sent without re-reading. Each message requires approximately 30,000 bytes of memory.

STATS QMGR can be used to help tune this parameter. It provides usage information on the average number of messages waiting in cache, the maximum used, and the percent cache hits. These statistics can be used to help you achieve the optimum balance between memory usage and performance.

QPREALLOCATE {ON}
{OFF}

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.090			ON	OFF	ON	No

HP NonStop Shadowbase Command Definitions

Queue Manager Command Descriptions

The space for the queue files will be pre-allocated if this parameter is on. Otherwise, it will be allocated as the queue fills, and will be deallocated as the queue empties. Setting this parameter to ON guarantees that Queue Manager will not run out of space on the disk while it is running and is recommended for production configurations. Setting this parameter to OFF allows much more effective use of disk space, and is recommended for test configurations.

QREADAHEAD <number>

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
4.090			3	2	100	No

Is the number of blocks the Queue Manager will read ahead when reading data to send to the Consumer. Each block requires approximately 56K bytes of memory. Since the Queue Manager typically can read data from disk faster than the Consumer can apply it, the default value of 3 should usually be sufficient. Note: each read from disk may translate into many insert, updates, and deletes at the Consumer.

QSUBVOLUME <subvolume-part>

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
4.090		None		The subvolume the queue files will be placed in.	No

This is subvolume the Queue Manager will place the queue files in. It is a required parameter. Note that this is only the subvolume portion of the file name – the volume and name portions are constructed by the Queue Manager using the QVOLUMES and QFILEPREFIX parameters.

See QFILEPREFIX for an example of how the full file name is created.

QVOLUMES {volume} {(volume [,volume...])}

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
4.090		None		A disk volume or list of disk volumes for storing the queue data.	No

This parameter is the volume or list of volumes to store the queue data on. This is a required parameter. Up to 16 disks can be specified.

Note: if possible, the disks should be dedicated to the disk queue to avoid

having the writes impact your application. If the disks cannot be dedicated, consider setting the QBUFFEREDIO parameter to off.

QWRITEQUEDEPTH <number>

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
4.090		3	2	100	No

This is the number of 56Kbyte write buffers the process will maintain for writing to the disk. The Queue Manager will not reply to the message from the Collector until the message has been buffered for writing to disk. At the maximum message size, each buffer will hold just under 2 messages. Since the Queue Manager will typically receive data slower than it can write to disk, the default of 3 buffers should usually be sufficient.

RESTARTFILE [\system.\$volume.subvolume] restart_fname

Initial Version	Changed Version	Values Default	Value Specifications	Alter
4.090		None	Valid file name	No

This parameter identifies the name of the file, which provides the restart position within the queue for sending data to the Consumer and the position the Collector should use to start audit trail reading. When starting up, the Queue Manager will read the restart file to determine where it will start reading in the audit trail stream. For a coldstart, where the Collector's starting parameters are used, this file must not exist (user must purge manually). This file name must be unique for each Queue Manager and Collector. This is a required parameter.

TRACE level_number

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
4.090		0 disable	0	3	No

Disables or sets the trace level for the QMGR event tracing. Level_number specifies the level of detail supplied in the trace. 0 through 3 are valid level_numbers. The default is 0, which disables tracing. A setting of 1 dumps most function names as they are called, 2 dumps additional function names, and detail for certain functions.

Note: Tracing generates a significant additional overhead, and will adversely affect performance. Tracing should never be enabled except under direction from HP Shadowbase Support.

TRACEFILE filename

Initial Version	Changed Version	Values Default	Value Specifications	Alter
4.090		None	Valid file name Include NODE	No

When tracing is enabled, this identifies the file name where the results are to be output. The filename can be fully qualified with volume and subvolume names, however, the file name portion may only be 7 bytes. The Queue Manager will create up to 36 trace files, each will hold approximately 10MByte of data, extent sizes (14, 42) with maxextents = 746. Each file will have 0-9, A-Z appended to it. For example, if the TRACEFILE specified was \$DATA.TRACE.QMGR, the Queue Manager would create up to 36 trace files named \$DATA.TRACE.QMGR0, \$DATA.TRACE.QMGR1, ..., \$DATA.TRACE.QMGR9, \$DATA.TRACE.QMGRA, ..., \$DATA.TRACE.QMGRZ. When the QMGRZ file is filled, it will roll to writing back at the QMGR0 file.

SHOW QMGR Command

The SHOW QMGR command displays the current values set for the Queue Manager during the current AUDCOM session. The syntax is:

```
SHOW [ / OUT list_file / ] QMGR
```

OUT list_file

This directs listing the output to a named file. It can be a disk file, spooler location, or process such as \$ZHOME. If omitted, listing output goes to the AUDCOM list file; this is typically the home terminal.

An example of the results of doing an SHOW QMGR command is shown below:

```
QMGR OBJECT SETTINGS:
  ABNORMALSHUTDOWN DRAINSTOP
  BACKUPCPU ?
  CHKPTDELAY 500
  CHKPTTIME 300
  CHKPTWARNRATE 900
  CHKPTWARNTDIFF 8100
  COLLNAME ?
  CPU ?
  CPULIST ( ? )
  DEBUG OFF
  FAILMAX 0
  FAILRETRYDELAY 15
```

HP NonStop Shadowbase Command Definitions

Queue Manager Command Descriptions

```
FAILSPAN 900
MAXCONSWRITES 15
MEASURE OFF
PRI 133
PROCESS ?
PROGRAM \H2.$DATA.SHADOW.AUDQMGR
QBUFFEREDIO OFF
QFILEEXTENT ( 4000, 4000, 128 )
QFILEPREFIX QF
QFILESECURITY UUUU
QFILESPELVOLUME 3
QFLUSHDELAY 300
QFLUSHLIMIT 40
QMSGCACHE SIZE 500
QPREALLOCATE ON
QREADAHEAD 3
QSUBVOLUME ?
QVOLUMES ?
QWRITEQUEDEPTH 3
RESTARTFILE ?
TRACE OFF
TRACEFILE ?
```

START QMGR Command

The START QMGR command enables execution of a Queue Manager. This command causes the Queue Manager to prepare to communicate with the Consumers and to initialize the disk queue. This command must be followed by a RUN command for the Queue Manager to actually begin sending data to the Consumer. Enter this command after the associated Consumer is started. The syntax is:

```
START { [ QMGR ] [<audmon_name>.]qmgr_name }
      { [ QMGR ] [<audmon_name>.*] }
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

qmgr_name

is the name of the Queue Manager to be started.

*

This indicates to start all Queue Managers.

STATS QMGR Command

The STATS QMGR command displays resource usage and system performance statistics for a Collector.

The syntax is:

```
STATS { [QMGR] { [<audmon-name>.]<qmgrname>}
        { [<audmon-name>.]*          }
        [,DETAIL]
        [,RESET]
        [,INTERVAL <num> {HRS}
                           {MINS}
                           {SECS} ] }
```

OUT list_file

This directs listing the output to a named file. If omitted, listing output goes to the AUDCOM list file; this is typically the home terminal.

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

qmgr_name

Is the name of the Queue Manager.

*

This indicates to include all Queue Managers.

DETAIL

If present, more information may be displayed in the report. In Version 4.090, the option has no effect – the displays are the same.

RESET

Sets counters used for the measurement to zero.

INTERVAL

Is a time interval between the displays. When specified, you must use the break key to end the command.

Here is an example of the STATS QMGR command:

HP NonStop Shadowbase Command Definitions

Queue Manager Command Descriptions

```

SHADOWBASE - V5002H06 - (26OCT12)
QMGR STATS AT 2010-03-05:13:19:58 (UNDOMODE):

NAME: QMGR01          PROCESS: \H1.$JHQM1      SINCE: 2010-03-04:17:41:50
                        AUDMON:  \H1.$JHMON      DURATION: 19:38:07.797

LATENCY WARNING STATUS: DISABLED
COLL:    03-05 13:19:55.281 LAG (CUR): 00:00:03.364
CONS ETS: 03-05 13:19:55.281 LAG (CUR): 00:00:03.364
CONS LTS: 03-05 13:19:55.281 LAG (CUR): 00:00:03.364

COLL PROCESSING SUMMARY
LAST RESTART FROM COLL (MAT POSITION):
  SEQ          RBA TIME          LAG (CUR)
-----
000884      293009476 03-05 13:19:46 00:00:12.287
COLL MESSAGE INFO (EVENT DATA):
      SIZE (BYTES)      EVENTS      BYTE TOTALS
      RCVD  MIN  MAX  AVG  MIN  MAX  AVG  RECEIVED  REPLIED
-----
187070    42 29954 26165    0  122  116  4894712812  29466016
PENDING REPLY:      0      CUR AGE: 00:00:00.000
MAX PENDING REPLY: 14      MAX REPLY:      0.958  AVG REPLY:      0.001
COLL BLOCKED: 00:00:00.000

CONS PROCESSING SUMMARY
CONSUMER MESSAGE INFO (EVENT DATA):
  SENDS  MIN SIZE  MAX SIZE  AVG SIZE  MIN OPS  MAX OPS  AVG OPS
-----
238325    42    29954    20547    1    134    91
  BYTES SENT  BYTES REPLIED  NUM WRTRDS  WRTRD TIME  AVG RESP
-----
4896865522    24987356    238325  18:07:36.912    0.274

CUR SENDS: 0  CUR BYTES:      0      CUR AGE: 00:00:00.000
MAX SENDS: 15  MAX RESP:    41.196
QMGR BLOCKED: 00:00:43.398
TRANSACTION TRACKING INFO:
CUR CNT:      0  MAX CNT:    1013  NUM ABORTING:      0

EVENT SUMMARY
RECORD TYPE          RCV'D FROM COLL  SENT TO CONS  SKIPPED
-----
BEGINS(logical)          5          0          0
COMMITTS                 3          0          0
ABORTS                   2          0          0
NETWORK COMMITTS         0          0          0
NETWORK ABORTS           2          0          0
ALTERS                   0          0          0
CREATES                  0          0          0
PURGES                   0          0          0
PURGEDATAS               0          0          0
INSERTS                  315         -          -
  SENT AS DELETES         -          0          -
  SKIPPED(ABORTED INSERT) -          -          0
  SKIPPED(UNDO OF DELETE) -          -          0
DELETES                  200         -          -
  SENT AS INSERTS         -          0          -
  SKIPPED(ABORTED DELETE) -          -          0
  SKIPPED(UNDO OF INSERT) -          -          0
UPDATES                   49         -          -
  SENT AS UPDATES         -          0          -
  SKIPPED(ABORTED UPDATE) -          -          0
  SKIPPED(UNDO OF UPDATE) -          -          0
-----
TOTALS                   576          0          0
RATE (OPS/SEC)           0.1          0.0          0.0

```

HP NonStop Shadowbase Command Definitions

Queue Manager Command Descriptions

QUEUE SUMMARY							
NAME: \$<vol>.JHQFILES.AA FILES/VOL 10 PREALLOCATE OFF							
	NUM	ACT	AVAIL	ROLL	ALLOC	USED	% USED
	-----	-----	-----	-----	-----	-----	-----
\$DATA2	10	0	10	0	0.0b	0.0b	0.00
\$DATA1	10	1	9	0	5161.0K	5161.0K	100.00
TOTAL	20	1	19	0	5161.0K	5161.0K	100.00
MAX USED	20	2	18	0	11.7M	11.6M	99.51
ADT POSITION:				SEQ	RBA	TIME	
				-----	-----	-----	
COLL				AA000884	293821008	03-05	13:19:55.281
CONS				AA000884	293821008	03-05	13:19:55.281
COLL RESTART (LAST RCVD)				AA000884	293821008	03-05	13:19:55.281
CONS RESTART (LAST SENT)				AA000884	293821008	03-05	13:19:55.281
ADT RECORDS INFO:	CURRENTLY			----- QUEUED FOR RESTARTING -----			
RECORD TYPE	QUEUED			QUEUED	COLL RESEND	RESTART TOT	
	-----			-----	-----	-----	
BEGINS (logical)	0			0	0	0	
COMMITTS	0			0	0	0	
ABORTS	0			0	0	0	
NETWORK COMMITTS	0			0	0	0	
NETWORK ABORTS	0			0	0	0	
ALTERS	0			0	0	0	
CREATES	0			0	0	0	
PURGES	0			0	0	0	
PURGEDATAS	0			0	0	0	
INSERTS	0			0	0	0	
DELETES	0			0	0	0	
UPDATES	0			0	0	0	
	-----			-----	-----	-----	
TOTALS	0			0	0	0	
SAFESTORE QUEUE I/O INFO:							
OPERATION	DURATION	COUNT		BYTES	OPS/SEC	BYTES/SEC	
	-----	-----		-----	-----	-----	
WRITE	00:20:27.420	85629		4910309376	69.8	4000511	
WRITEUPDATE	00:02:29.878	14620		838369280	97.5	5593646	
WRITE TOTAL	00:22:57.299	100249		5748678656	72.8	4173877	
CACHE FLUSH	00:00:00.000	0		0	0.0	0	
EOF UPDATE	00:01:28.270	14907		0	168.9	0	
PURGEDATA	00:00:03.710	446		0	120.2	0	
RENAME	00:00:16.073	446		0	27.7	0	
OTHER	00:00:09.501	892		0	93.9	0	
Q WRITE TOT	00:24:54.855	116940		5748678656	78.2	3845643	
OPEN	00:00:00.001	1		0	573.7	0	
READ	00:00:00.070	55		3153920	784.0	44959658	
CLOSE	00:00:00.000	1		0	1246.9	0	
Q READ TOT	00:00:00.072	57		3153920	784.1	43385652	
BLOCKED FOR FLUSH: 00:00:00.000							
IPC IN-MEMORY QUEUE:							
SIZE	INUSE MAX	INUSE AVG		HITS	MISSES	% HITS	
	-----	-----		-----	-----	-----	
0	100	0		186942	127	99.93	

The report contains a number of different sections, each section is described below. Note: A number of the statistics accumulate over time. The measurement period for these statistics is from the last STATS RESET command issued to the Queue Manager, or from startup if no STATS RESET command has been issued. The start of the period is

shown in the SINCE field of the header, the duration is shown in the DURATION field.

1. **HEADING:** Displays basic information about the process.
 - `QMGR STATS AT <date> <time>` shows the time when the command was invoked
 - `UNDOMODE` indicates state performed during UNDO cycle (v5.001)
 - `NAME` shows the logical name of the Queue Manager
 - `PROCESS` shows the process name of the Queue Manager
 - `SINCE` shows the time the stats were last reset. If the stats have never been reset, the time shown is the time the Queue Manager was started.
 - `AUDMON` shows the monitor process associated with the Queue Manager
 - `DURATION` shows the time the Queue Manager has been running.
2. **LATENCY WARNING STATUS** – This section indicates the current status of transaction processing. For 4.090, the only possible value is **DISABLED**.
 - `COLL` shows the audit trail time and lag (difference between the audit trail time and current time) for the last event received by the Collector.
 - `CONS(ETS)` shows the audit trail event time and lag for the oldest outstanding event sent to the Consumer, i.e., i.e., the oldest event sent to the Consumer that it has not acknowledged committing or rolling back.
 - `CONS(LTS)` shows the audit trail event time and lag for the last event sent to the Consumer.
3. **COLL PROCESSING SUMMARY:** This section shows statistics on the messages received from the Collector and their associated processing.
 - `LAST RESTART FROM COLL (MAT POSITION)` shows the restart information sent by the Collector based upon the Collector's restart position. The columns are:
 - `SEQ` is the MAT audit trail file sequence number.
 - `RBA` is the MAT relative byte address (RBA).
 - `TIME` is the MAT event time.
 - `LAG` is the lag for the event.
 - `COLL MESSAGE INFO (EVENT DATA)` shows accumulated statistics over the measurement period for the messages received from the Collector. The columns are:
 - `RCVD` – the total messages received.
 - `SIZE (BYTES) / MIN` – the minimum message size received.
 - `SIZE(BYTES) / MAX` – the maximum message size received.
 - `SIZE(BYTES) / AVG` – the average message size received.
 - `EVENTS / MIN` – the minimum number of events in a message.
 - `EVENTS / MAX` – the maximum number of events in a message.

HP NonStop Shadowbase Command Definitions

Queue Manager Command Descriptions

- `EVENTS / AVG` – the average number of events per message.
 - `BYTE TOTALS / RECEIVED` – the total bytes received from the Collector.
 - `BYTE TOTALS / REPLIED` – the total bytes sent in response to the Collector.
 - `PENDING REPLY` shows the number of messages received from the Collector that have not yet been replied to.
 - `CUR AGE` is the age of the oldest outstanding message from the Collector – the difference between the time the message was received and the current time.
 - `MAX PENDING REPLY` shows the maximum number of messages received that were not replied to over the measurement period.
 - `MAX REPLY` is the maximum time, in seconds, between when a message was received and replied to over the measurement period.
 - `AVG REPLY` is the average time, in seconds, for a reply to the Collector to be issued over the measurement period.
 - `COLL BLOCKED` is the time the Collector was blocked from sending messages because the Queue Manager had not replied and the Collector had sent all messages it could. The time is calculated by accumulating the interval between the Queue Manager receiving a message such that the max nowait I/O (`MAXCONSWRITES` parameter) is reached, and when the Queue Manager receives the next message from the Collector over the measurement period.
4. **CONS PROCESSING SUMMARY:** This section displays statistics about messages sent from the Queue Manager to the Consumer. It includes cumulative statistics over the measurement period, as well as the current state of Consumer related processing.
- `CONSUMER MESSAGE INFO (EVENT DATA)` presents cumulative message statistics over the measurement period. The columns in this section are:
 - `SENDS` is the number of messages sent, including those that have not completed yet.
 - `MIN SIZE` is the minimum length of the messages sent, in bytes.
 - `MAX SIZE` is the maximum length of the messages sent to the Consumer, in bytes.
 - `AVG SIZE` is the average size of the messages sent to the Consumer, in bytes.
 - `MIN OPS` is the minimum number of operations (events) in the messages sent to the Consumer.
 - `MAX OPS` is the maximum number of operations (events) in the messages sent to the Consumer.
 - `AVG OPGS` is the average number of operations (events) in the messages sent to the Consumer.
 - `BYTES SENT` is the total number of bytes sent to the Consumer.

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Queue Manager Command Descriptions

- `BYTES REPLIED` is the total number of bytes in the replies from the Consumer.
- `NUM WRTRDS` is the number of writereads to the Consumer that have completed.
- `WRTRD TIME` is the total time in seconds it took for the writeread operation to complete – the interval between when the writeread was issued and the replied received. Note: Since the writeread is done nowaited, the Queue Manager is not blocked from other processing for this period.
- `AVG RESP` is the average response time of the Consumer in seconds over the period. This is the time from initiating the send until the reply is received.
- `CUR SENDS` is the number of messages outstanding to the Consumer at this time.
- `CUR BYTES` is the total bytes in the outstanding messages.
- `CUR AGE` is the age of the oldest message outstanding in seconds – the interval between the oldest message was sent to the current time.
- `MAX SENDS` is the maximum number outstanding over the measurement period.
- `MAX RESP` is the maximum time over the measurement period, in seconds, for a response from the Consumer.
- `QMGR BLOCKED` is the total time over the measurement period that the Queue Manager had messages to send to the Consumer but was unable to send them because it had reached the NOWAIT depth (`MAXCONSWRITE` parameter) of messages sent but not completed.
- `TRANSACTION TRACKING INFO` provides statistics about the Queue Manager's tracking of transactions in messages sent to the Consumer.
 - `CUR CNT` is the number of transactions it is currently tracking – that is, the number of transactions that have been sent to the Consumer but not reported committed or aborted by the Consumer.
 - `MAX CNT` is the maximum number of transactions over the measurement period tracked by the Queue Manager.
 - `NUM ABORTING` is the number of transactions sent to the Consumer that are currently aborting – that is, the number of transactions where a rollback event has been received and sent to the Consumer, but the Consumer has not completed the operation.

5. EVENT SUMMARY: This section displays the counts of the different audit trail event types that have been received from the Collector and sent to the Consumer over the measurement period. Note that events sent to the Consumer include those received from the Collector and those sent from the queue on a restart unless the statistics are reset after a restart. The total events for each specific event type are presented, followed by the total number of events received or sent, followed by the rate. The rate is calculated by taking the total number of events and dividing by the

duration of the measurement period.

6. **QUEUE SUMMARY:** The queue summary section provides information about the disk queue used by the Queue Manager. The first part of the section provides basic configuration and about the files in the queue; the remaining subsections are discussed further below.
 - `NAME` is the template for the queue file names, built from the `QSUBVOLUME` and `QFILEPREFIX`
 - `FILES / VOL` is the number of files per volume, from the `QFILESPERVOLUME` attribute.
 - `PREALLOCATE` indicates whether the file space on disk is pre-allocated or dynamically allocated and deallocated as the files are used, from the `QPREALLOCATE` attribute.
7. **QUEUE SUMMARY - DISK USAGE:** This sub-section shows the disk space usage for each volume specified in the `QVOLUMES` attribute. There is one line for each disk used, followed by a total line for all disks. The final line presents the maximum usage over the measurement period for all disks. The columns are:
 - Row identification (no header). The rows in this table are:
 - `$<disk>`: these rows contain the current usage for the specified disk.
 - `TOTAL`: this row contains the current usage over all disks.
 - `MAX USED`: this row contains the maximum usage over the measurement period for all disks.
 - `NUM` is the number of files.
 - `ACT` is the number of files that are active, that is, that have data that either has not been sent or may need to be resent on a restart.
 - `AVAIL` is the number of files that are available for saving data.
 - `ROLL` is the number of files that are currently rolling. Note: `ROLL` will be 0 for the `MAX USED` line; they are considered available in that context.
 - `ALLOC` is the total space allocated.
 - `USED` is the total space in use.
 - `% USED` is the percentage of the allocated space that is used.
8. **QUEUE SUMMARY – ADT POSITION:** This sub-section contains information about the position in the audit data trail (ADT) of various events related to the queue processing. Information about the last event received from the Collector, the last event sent to the Consumer, the Collector restart point and the Consumer restart point are presented. The information includes:
 - Row identification (no header). Identifies the information in the rest of the row. The rows include:
 - `COLL (LAST RCVD)` : this is the ADT information for the last event received and buffered for writing to the queue from the Collector.

- `CONS (LAST SENT)` : this is the ADT information for the last event sent to the Consumer.
- `COLL RESTART` : this is the ADT information for the Collector restart point as determined by the Queue Manager. This is the last event stored in the queue when the last write to the restart file occurred
- `CONS RESTART` : this is the ADT information for the Consumer restart point, it is the oldest outstanding event that has been sent to the Consumer but not committed or aborted when the restart file was written.
- `SEQ` – the audit trail file (prefix and sequence number) where the event was stored.
- `RBA` – the relative byte address of the event with the file.
- `TIME` – the event timestamp

9. **QUEUE SUMMARY – ADT RECORDS INFO:** This sub-section contains event counts for data stored in the queue. The event counts for data queued for sending to the Consumer are shown, as well as the event counts for data that would have be sent from the queue if the Queue Manager was restarted. The restart event counts are further broken down into the count of events that can be sent from the local queue, and the count that the Collector would have to resend. On a restart, the Queue Manager will resend from its queue messages up to the last saved restart position. Messages received after the position will have to be resent from the Collector. Note that on a normal shutdown, the latest restart information will be saved so no messages received by the Queue Manager will have to be resent. However, in the case of a CPU or process failure, those received after the restart file was updated will have to be resent.

The information in this section is:

- `RECORD TYPE`: The record type for the event.
- `CURRENTLY QUEUED`: The number of events currently queued for sending to the Consumer; that is, the number of events that have been received but not sent.
- `QUEUED FOR RESTARTING / QUEUED`: The number of events that would be sent to the Consumer from the queue. This is the number of events from the Consumer's restart point when the restart file was last written to the last event in the queue when the restart file was last written.
- `QUEUED FOR RESTARTING / COLL RESEND`: The number of events that Collector would have to resend on a restart. This is the number of events from the last event in the queue when the restart file was last written to the current last event in the queue.
- `QUEUED FOR RESTARTING / RESTART TOTAL`: The total number of events that need to be resent on a restart.

- 10. QUEUE SUMMARY / SAFESTORE QUEUE I/O INFO:** This sub-section contains statistics accumulated over the measure period for I/Os performed against the queue files. The time for an operation is calculated from when the operation is initiated until it completes with in a call to AWAITIOX. The columns for this section are:
- **OPERATION:** identifies what is being timed in the row:
 - **WRITE** – writes to the queue file.
 - **WRITEUPDATE** – write-updates to the queue file.
 - **WRITE TOTAL** – the total for WRITE and WRITEUPDATE operations.
 - **CACHE FLUSH** – Statistics for SETMODE 95 calls to flush cache. If the write-thru cache is used, this will be 0. These calls are made when the restart file is written.
 - **EOF UPDATE** – Statistics for CONTROL 2 operations to cause the EOF to be written to disk for the queue file. These calls are made when the restart file is written.
 - **PURGEDATA** – Statistics for CONTROL 20 operations to purge data from the queue file. Called when the file is being prepared for use.
 - **RENAME** – Statistics for FILE_RENAME_ calls to rename the file. Called as part of the process to prepare the file for use.
 - **OTHER** – Statistics for miscellaneous SETMODE operations called to prepare the file for use, include setting the buffered option, setting security, and allocating / deallocating space.
 - **Q WRITE TOTAL** – The total of all operations for writing to the queue.
 - **OPEN** – Statistics for opening the queue files for reading.
 - **READ** – Statistics for reading from the queue files.
 - **CLOSE** – Statistics for closing the files after reading.
 - **Q READ TOTAL** – The total of operations for reading from the queue – the sum of the OPEN, READ, CLOSE lines.
 - **DURATION:** The total time in seconds for the measurement period the specified operation(s) took, measured from when the operation was initiated until it completed.
 - **COUNT:** The number of operations done during the measurement period.
 - **BYTES:** The number of bytes transferred over the measurement period for the operation.
 - **OPS/SEC:** The number of operations per second – COUNT / DURATION.
 - **BYTES/SEC:** The number of bytes transferred per second – BYTES / DURATION.
- 11. QUEUE SUMMARY / BLOCKED FOR FLUSH:** This line shows the time the Queue Manager was blocked during a SETMODE 95 call to flush buffered data to disk. SETMODE 95, if when done nowaited, blocks until the data is flushed to disk. During this time, the Queue Manager cannot do any other processing. Note: the CACHE FLUSH line measures the time

from when the SETMODE is called until the operation completes in a call to AWAITIOX. This line only measures the time in the SETMODE call. It will be 0 if write-thru cache is used (QUSEBUFFEREDIO set to OFF).

12. QUEUE SUMMARY / IPC IN-MEMORY QUEUE: This sub-section shows the usage for the in-memory queue. Whenever possible, the Queue Manager will try to send messages from the in-memory queue, eliminating the need for reading from the disk queue. The columns in this sub-section are:

- **SIZE:** The number of IPMS currently queued in the in-memory cache for sending to the Consumer. If SIZE is equal to the QMSGCACHESIZE attribute, the in-memory cache is currently full and the Queue Manager will have to read the disk queue to get the messages to send.
- **INUSE MAX:** The maximum number of IPMS that were queued in the in-memory cache during the measurement period. If INUSE MAX is equal to the QMSGCACHESIZE attribute, the in-memory cache was full at some point during the period.
- **INUSE AVG:** This is the average number of messages still waiting in the memory cache to be sent. This number is based upon checking the size of the queue after a message is sent to the Consumer. If it is 0 or close to 0, messages are being sent as soon as they are received.
- **HITS:** This is the number of messages accumulated over the measurement period that were sent from the in-memory cache.
- **MISSES:** This is the number of messages accumulated over the measurement period that had to be read from disk prior to sending. If the statistics are not reset after a restart, this will include the messages that were read from the queue for resending at startup as well as the messages that were read when the memory cache was full.
- **% HITS:** The percent of messages that were sent from the in memory queue over the message period: $HITS / (HITS + MISSES)$.

STATUS QMGR Command

The STATUS QMGR command shows the status of a Queue Manager and its associated Consumer.

The syntax is:

```
STATUS [ / OUT list_file / ] { [ QMGR ] [<audmon-name>.] qmgr_name }  
                                     { [ QMGR ] [<audmon-name>.* ]  
                                     [, DETAIL]
```

OUT list_file

This directs listing the output to a named file. If omitted, listing output goes to the AUDCOM list file; this is typically the home terminal.

HP NonStop Shadowbase Command Definitions

Queue Manager Command Descriptions

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

qmgr_name

Is the name of the Queue Manager.

*

This indicates to include all Queue Managers.

DETAIL

If specified, more detail may be produced. In Version 4.090, the DETAIL option has no effect.

Here is an example of the output for a STATUS QMGR command:

SHADOWBASE - V5002H06 - (26OCT12)					
QMGR STATUS AT 2010-03-05:16:47:25 :					
AUDMON: \H1.\$JHMON					
QMGRNAME	PROCESS	STATE	ADTSEQ	ADTRBA	QFILES
-----	-----	-----	-----	-----	-----
QMGR01	\H1.\$JHQM1	RUNNING	887	197839204	1
EMS	CLOSED				
QNEXTFILE	OPENED	\$DATA2.JHQFILES.AA003161		[ERROR=0]	
QREADFILE	CLOSED				
QWRITEFILE	OPENED	\$DATA1.JHQFILES.AA003160		[ERROR=0]	
RESTARTFILE	OPENED	\H1.\$JRH.RESTART.AUDQMGR		[ERROR=0]	
TRACE	OPENED	\H1.\$JRH.LOG.QMTRAC		[ERROR=0]	
CONSUMER STATE INFO:					
CONSNAME	STATE	LAST SUSPENDUPD	RECEIVED	LAST RESUMEUPD	
-----	-----	-----	-----	-----	
CONS01	RUNNING	03-05 16:46:30	03-05 16:46:31	03-05 16:47:15	

1. **QUEUE MANAGER STATUS AT:** provides the date and time of the status request.
2. **AUDMON:** The process name for the AUDMON process monitoring the Queue Manager.
3. **Queue Manager info:** This line provides information about the Queue Manager:
 - QMGRNAME – the logical name of the Queue Manager.
 - PROCESS – the process name for the Queue Manager.
 - STATE – the state for the Queue Manager.
 - FAILED: the Queue Manager stopped unexpectedly.
 - IDLE: The Queue Manager has been added, but has not been started.

- RUNNING: The Queue Manager is processing data.
 - SUSPENDED: The flow of data from the Collector to the Queue Manager has been suspended via a SUSPEND QMGR command. Note that queued data will continue to flow to the Consumer until the queue is drained.
 - STARTED: The Queue Manager was started via the START command, but has not received the RUN command yet.
 - UNKNOWN: The Queue Manager did not respond within AUDMON's timeout limit and AUDMON could not determine its current state. Check the EMS log for messages with more information on the state of the Queue Manager.
- ADTSEQ – the MAT sequence number for the last event received from the Collector. If -1, no data has been received from the Collector.
 - ADTRBA – the MAT RBA for the last event received from the Collector. If -1, no data has been received.
 - QFILES - the number of active queue files – queue files that either have data that has not been sent to the Consumer or that is needed to be resent in the case of a restart.
4. **File info:** The next 6 lines have information about files used by the Queue Manager. The data on each line is:
- Logical file name – the logical file name identifying the specific file.
These are:
 - EMS: The EMS Collector the Queue Manager uses for logging.
 - QNEXTFILE: The next file to be written to by the Queue Manager. If the queue is full, or there is no file ready to be used, the state of this file is CLOSED.
 - QREADFILE: The queue file the Queue Manager is currently reading from to retrieve data to send to the Consumer. If closed, the Queue Manager is sending data from the memory cache.
 - QWRITEFILE: The file where the Queue Manager is currently writing. If the queue is full, the state of this file is CLOSED.
 - RESTARTFILE: The file where the Queue Manager saves restart information.
 - TRACE: The file where the Queue Manager is writing trace messages.
 - The state of the file – opened or closed.
 - If the file is opened, the Guardian file name..
 - If the file is opened, the error returned by the last operation on the file.
5. **CONSUMER STATE INFO:** Provides information about the state of the Consumer. The columns are:
- CONSNAME: The Consumer's logical name.
 - STATE: The current state of the Consumer:

HP NonStop Shadowbase Command Definitions

Queue Manager Command Descriptions

- FAILED: the Consumer stopped unexpectedly.
 - IDLE: The Consumer has been added, but has not been started.
 - RUNNING: The Queue Manager is processing data.
 - SUSPENDED: The flow of data from the Queue Manager to the Consumer has been suspended via a SUSPEND CONS command. Note that ADT data will continue to flow to the Queue Manager from the Collector until the queue is completely full.
 - SUSPENDUPD: The flow of data to the Consumer was suspended via SUSPENDUPD command. . Note that ADT data will continue to flow to the Queue Manager from the Collector until the queue is completely full while in this state.
 - STARTED: The Consumer was started via the START command, but has not received the RUN command yet.
 - UNKNOWN: AUDMON did not get a response within the time expected and could not determine the Consumer's current state. Check the EMS log for messages with more information on the state of the Consumer.
- LAST SUSPENDUPD: The time the last SUSPENDUPD processed was generated. In the example above, the SUSPENDUPD was generated at 16:46:30.
 - LAST SUSPENDUPD – RECEIVED: The time the last SUSPENDUPD was sent to (received by) the Consumer – this is the time the SUSPENDUPD actually took effect. In the example above, the SUSPENDUPD was invoked at 16:46:31 – 1 second after being generated.
 - LAST RESUMEUPD: The time the last RESUMEUPD command was received to resume the flow to the Consumer.

STOP QMGR Command

The STOP QMGR command stops a Queue Manager. The syntax is:

```
STOP { [ QMGR ] [<audmon_name>.<qmgr_name> }  
      { [ QMGR ] [<audmon_name>.* ] }  
                                           [!]
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

qmgr_name

Is the name of the Queue Manager.

*

Indicates to stop all Queue Managers.

!

Indicates to ignore errors, and disregard the CONFIRMSHUTDOWN parameter.

Note: The Consumer may abend when the Queue Manager is stopped if there is work in progress (active transactions) at the Consumer.

Note: The Queue Manager will refresh the restart file restart point prior to stopping if this command is issued.

SUSPEND QMGR Command

The SUSPEND QMGR command suspends sending data from the Collector to the Consumer. That is, the Collector will not send additional records from the audit trail file to the Queue Manager. The Queue Manager, however, will continue to send queued data to the Consumer. The syntax is:

```
SUSPEND      { [ QMGR ] [<audmon_name>.]<qmgr_name> }  
              { [ QMGR ] [<audmon_name>.*] * }
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

qmgr_name

Is the name of the Queue Manager to be suspended.

*

This indicates to suspend all Queue Managers.

SOLV Manager (File Chaser) Command Descriptions

Effective with release of NSB6.100 of HP NonStop Shadowbase, the SOLV Manager is now referenced as the HP Shadowbase File Chaser utility.

SOLV Manager commands are associated with the definition and control of SOLV Managers in a HP Shadowbase system. SOLV and the SOLV Manager are optional components of a HP Shadowbase replication system that controls the loading of source to target Enscribe files and SQL/MP tables.

SOLV is architected to provide online loading of a source database into a target database. This means that the source database can be open for reading or updating while the load occurs, and also that the target database can be open for reading or updating while the load occurs. There is no need to take the source or target databases off-line (inaccessible to applications) while the load is done. SOLV can load audited, and non-audited, NonStop Enscribe files and SQL/MP tables into any target environment and database supported by HP Shadowbase (e.g., NonStop Enscribe or SQL targets, or HP Shadowbase Other Servers targets such as Oracle, Sybase, SQL Server, DB2, etc).

The SOLV Manager is used to facilitate the loading of a configured set of Enscribe files or SQL/MP tables. SOLV Manager can be configured to load files in a specific sequence while maintaining the capability to restart at the appropriate checkpoint. This feature is especially useful for replicating a set of unaudited entry sequenced log-type files. Sequencing can be optionally based on a file's last modified time or the file's name. SOLV manager can also be configured to monitor a set of unaudited files and reload the data table to the target when any changes to the contents are identified.

ADD SOLVMGR Command

The ADD SOLVMGR command enters a description of a SOLV Manager into the HP Shadowbase configuration. This command is entered after the appropriate SET commands for the SOLV Manager have been issued. The syntax is:

```
ADD [ SOLVMGR ] [<audmon_name>.] solvmgr_name
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the SOLVMGR will be added to the currently opened audmon process.

solvmgr_name

Is the logical name of the SOLV Manager; the name can have from one to 16 alphanumeric or hyphen characters. It must start with a letter and must be unique within the HP Shadowbase system. The solvmgr_name identifies the SOLV Manager within the HP Shadowbase system. It is used to associate one or more DBSs to include in a SOLV Manager's file set. Use the `SET DBS SOLVMGRNAME solvmgr_name` parameter to add DBSs to the file set.

DELETE SOLVMGR Command

The DELETE SOLVMGR command removes a SOLV Manager from the HP Shadowbase system. A SOLV Manager must be stopped before it can be deleted. The syntax is:

```
DELETE [ SOLVMGR ] [<audmon_name>.]solvmgr_name
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the SOLVMGR will be deleted from the currently opened audmon process.

solvmgr_name

Is the logical name of the SOLV Manager to be deleted.

INFO SOLVMGR Command

The INFO SOLVMGR command displays the current values for the attributes of the specified SOLV Manager or all SOLV Managers for a replication environment. The syntax is:

```
INFO [/ OUT list_file /] [SOLVMGR] {[<audmon_name>.]solvmgr_name}  
                                     {[<audmon_name>.* ]}
```

OUT list_file

HP NonStop Shadowbase Command Definitions
SOLV Manager (File Chaser) Command Descriptions

This directs listing the output to a named file. If this option is omitted, listing output is directed to the AUDCOM list file; this is typically the home terminal.

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

solvmgr_name

Is the logical name of a previously defined SOLV Manager.

*

This displays the current values for the attributes for all SOLV Managers in the HP Shadowbase system.

An example of the results of doing an INFO SOLVMGR command is shown below:

```
+info solvmgr *
SHADOWBASE VERSION INFO - V5000 - (19SEP11)
SOLVMGR SMGR1 OBJECT SETTINGS (AUDMON \H2.$GJMON) :
  ACTIVITYDELAY 60
  CHECKSAMEFILEATTR OFF
  CPULIST ( 1 )
  DEBUG OFF
  FAILMAX 1
  FAILRETRYDELAY 15
  FAILSPAN 900
  INACTIVITYDELAY 60
  LOADBEHAVIOR APPEND
  LOADSEQUENCING BYMODIFIEDTIME
  PRI 75
  PROCESS \H2.$GJSM1
  PROGRAM \H2.$GPJ.S5000.SOLVMGR
  SOLVAUDITTYPE INSERT
  SOLVCONFIGNAME \H2.$GPJ.S5000.SHADPARM
  SOLVCONFIGSECTION SOLVMGR
  SOLVCPULIST ( ? )
  SOLVCREATETARGETONSTART OFF
  SOLVDEBUG OFF
  SOLVEOFDELAY 60
  SOLVMAXRETRIES 3
  SOLVMGRDELAY 60
  SOLVPROCESS \H2.$GJSL1
  SOLVPRI 70
```

HP NonStop Shadowbase Command Definitions

SOLV Manager (File Chaser) Command Descriptions

```
SOLVPROGRAM \H2.$GPJ.S5000.SOLV
SOLVPURGEDATAONSTART OFF
SOLVRECDELAY 0
SOLVRETRYDELAY 30
SOLVTRANSDELAY 0
STARTFILE ?
STARTTIME ?
STOPFILE ?
STOPTIME ?
TRACE 0
TRACEFILE ?
```

OBEYFORM SOLVMGR Command

The OBEYFORM SOLVMGR command displays the parameter values in the SET command format for the SOLVMGR object. The syntax is:

```
OBEYFORM [/OUT <listfile>/] { [SOLVMGR]
[<audmon_name>.]<solvmgr_name>    }
                                     { [SOLVMGR]
[<audmon_name>.*]
```

listfile

Is the name of a file to receive the output. listfile can be an edit file that can subsequently be edited for use.

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

solvmgr_name

Is the logical name of a previously defined SOLV Manager.

*

This displays the current values for the attributes for all SOLV Managers in the HP Shadowbase system.

Note: Parameters that do not have values set are commented out.

An example of the results of doing an OBEYFORM SOLVMGR command is shown on the below:

HP NonStop Shadowbase Command Definitions

SOLV Manager (File Chaser) Command Descriptions

```
+obeyform solvmgr *
[BEGIN OBEYFORM OUTPUT AT 2011-09-01:14:13:16]

[SHADOWBASE VERSION INFO - V5000 - (19SEP11)]
[SOLVMGR SMGR1 OBJECT SETTINGS (AUDMON \H2.$GJMON):]
  RESET SOLVMGR
  SET SOLVMGR ACTIVITYDELAY 60
  SET SOLVMGR CHECKSAMEFILEATTR OFF
  SET SOLVMGR CPULIST ( 1 )
  SET SOLVMGR DEBUG OFF
  SET SOLVMGR FAILMAX 1
  SET SOLVMGR FAILRETRYDELAY 15
  SET SOLVMGR FAILSPAN 900
  SET SOLVMGR INACTIVITYDELAY 60
  SET SOLVMGR LOADBEHAVIOR APPEND
  SET SOLVMGR LOADSEQUENCING BYMODIFIEDTIME
  SET SOLVMGR PRI 75
  SET SOLVMGR PROCESS \H2.$GJSM1
  SET SOLVMGR PROGRAM \H2.$GPJ.S5000.SOLVMGR
  SET SOLVMGR SOLVAUDITTYPE INSERT
  SET SOLVMGR SOLVCONFIGNAME \H2.$GPJ.S5000.SHADPARM
  SET SOLVMGR SOLVCONFIGSECTION SOLVMGR
[SET SOLVMGR SOLVCPULIST ( ? )]
  SET SOLVMGR SOLVCREATETARGETONSTART OFF
  SET SOLVMGR SOLVDEBUG OFF
  SET SOLVMGR SOLVEOFDELAY 60
  SET SOLVMGR SOLVMAXRETRIES 3
  SET SOLVMGR SOLVMGRDELAY 60
  SET SOLVMGR SOLVPROCESS \H2.$GJSL1
  SET SOLVMGR SOLVPRI 70
  SET SOLVMGR SOLVPROGRAM \H2.$GPJ.S5000.SOLV
  SET SOLVMGR SOLVPURGEDATAONSTART OFF
  SET SOLVMGR SOLVRECDELAY 0
  SET SOLVMGR SOLVRETRYDELAY 30
  SET SOLVMGR SOLVTRANSDELAY 0
[SET SOLVMGR STARTFILE ?]
[SET SOLVMGR STARTTIME ?]
[SET SOLVMGR STOPFILE ?]
[SET SOLVMGR STOPTIME ?]
  SET SOLVMGR TRACE 0
[SET SOLVMGR TRACEFILE ?]
  ADD SOLVMGR SMGR1

[END OBEYFORM OUTPUT AT 2011-09-01:14:13:16]
```

RESET SOLVMGR Command

The RESET SOLVMGR command resets a SOLV Manager parameter from the currently set value to the default value. The syntax is:

```
RESET [ SOLVMGR ] [ solvmgr_parameter [ , solvmgr_parameter ] ]
```

solvmgr_parameter options can be found if the SET SOLVMGR section.

If solvmgr_parameter is omitted, values for all parameters are reset.

This command is typically issued between groups of SET/ADD SOLVMGR descriptions. The command does not affect any SOLV Manager definition already established with an ADD SOLVMGR command.

Some parameters are required and have no default values. If a required parameter is included in the RESET SOLVMGR command, the parameter is set to a null value; the parameter must be specified again before adding another SOLV Manager description.

SET SOLVMGR Command

The SET SOLVMGR command establishes values for the attributes of a SOLV Manager.

In each description, there is a version box. This box contains information, as in the samples below.

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
1.000	2.700	30	1	32767	Yes

Initial Version	Changed Version	Values Default	Value Specifications	Alter
2.000		None	Valid MAT full filename Partial file name up to the AA prefix -1 to reset	No

To know if your version of HP Shadowbase can use the parameter, the first column titled 'Initial Version', is for when the parameter was first introduced. The next column is for if and when the parameter was last changed. If the parameter has a last changed version then the values in the columns following, are as of that version. The next column provides the default value. Next is provided, either the minimum to maximum values, or the listed value specifications. The value in the last column, titled 'Alter', is set to 'Yes' for those parameters that can be altered while

running. If the value under 'Alter' is 'No' then these parameters cannot be altered once the SOLV Manager is started.

The syntax is:

```
SET [ SOLVMGR ] solvmgr_parameter [ , solvmgr_parameter ] ...
```

solvmgr_parameter is one of the following:

ACTIVITYDELAY num

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
5.000		60	0	32767	Yes

ACTIVITYDELAY specifies the minimum number of seconds to wait before rolling to the next file or table in the sequence. This delay timer is activated once a newly started or running SOLV manager notices that the next file to be processed in the sequence has been modified. A running SOLV manager checks a file's last modified time based on the SOLVMGRDELAY attribute.

Note that this delay is relative to the time when activity is first detected by the SOLV manager. SOLV manager polls the file modified timestamps based on the SOLVMGRDELAY parameter.

CHECKSAMEFILEATTR {ON}
 {OFF}

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
5.000		OFF			Yes

This option verifies that all source files in the data set have the same file attributes. File type and record length are always checked. Primary key length and key offset are verified when appropriate.

CPULIST { (-1) }
 { cpu_number }
 { (cpu_number, cpu_number, ...) }

Initial	Changed
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HP NonStop Shadowbase Command Definitions

SOLV Manager (File Chaser) Command Descriptions

Version	Version	Values Default	Value Specifications	Alter
5.000		-1	Valid CPU number	Yes

This parameter specifies a list of processors to be used for starting the SOLV Manager. Up to 16 can be specified (0 through 15). The order of usage is based on the order specified in the list. If a processor is not available, the next in the list will be tried. An EMS message will be logged to indicate if a problem occurred attempting to use a processor in the list. An EMS message will be logged to indicate which processor is used. The default is nil (-1), meaning to use the same CPU where AUDMON is running.

If this parameter is altered, the CPU value(s) will not be in effect until the next time SOLVMGR needs to be restarted.

DEBUG { OFF }
 { ONSTART }

Initial Version	Changed Version	Values Default	Value Specifications	Alter
5.000		OFF	ONSTART	No

Specifies whether a SOLV Manager enters debug mode and under what condition. Generally, this should only be set when HP Shadowbase instructs you to do so for diagnosing problems.

OFF the SOLV Manager does not enter debug mode.
ONSTART the SOLV Manager enters debug mode on start-up.

If omitted, the default is OFF.

FAILMAX number_of_failures

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
5.000		0 indefinite	0	128	No

This specifies the maximum number of failures of a SOLV Manager allowable within the FAILSPAN period. If the AUD parameter AUTORESTART is set to ON and FAILMAX is set to 0, the restart attempts will continue indefinitely. Otherwise, AUDMON will attempt to restart FAILMAX number of times within the FAILSPAN. Valid values are 0 through 128. A value of 1 disables the restart capability.

FAILRETRYDELAY seconds

HP NonStop Shadowbase Command Definitions
SOLV Manager (File Chaser) Command Descriptions

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
5.000			15	1	3600	No

Specifies the number of seconds AUDMON will delay between restart attempts when the AUDMON AUTORESTART parameter is set to ON and FAILMAX is set to 0 or greater than 1. The default is 15 seconds. Valid values are 1 through 3600.

FAILSPAN seconds

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
5.000			900	0	32767	No

Specifies the span of time over which AUDMON will attempt to automatically restart failed processes when the AUD AUTORESTART parameter is set to on and FAILMAX is set greater than 1. The default is 900 seconds (15 minutes). Valid values are 0 through 32767.

INACTIVITYDELAY num

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
5.000			60	0	32767	Yes

INACTIVITYDELAY specifies the minimum number of seconds to wait before rolling to the next file or table in the sequence. This delay timer is based on the last modified timestamp of the current file being loaded. A running SOLV manager will periodically check the current file's last modified time. When the next file has activity and the current file has inactivity for this specified period, SOLV manager will trigger a roll to the next file.

SOLV manager polls the file modified timestamps based on the SOLVMGRDELAY parameter.

LOADBEHAVIOR { APPEND }
 { RELOAD } (future)
 { COPY } (future)
 { RESYNC } (future)

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
5.000			APPEND		No

LOADBEHAVIOR specifies the sequencing and some of the default parameters used by SOLV Manager as it is running.

APPEND	SOLV manager monitors source files for modifications and controls when the SOLV load needs to stop and the next file or table load can be started. PURGEDATAONSTART is not enabled.
RELOAD	Same as APPEND except PURGEDATAONSTART is enabled.
COPY	Will load each file in file set and stop. SOLV manager does not monitor file updates.
RESYNC	Same as COPY except that SOLV manager will delay and then check for file modifications to perform a reload of a particular file.

LOADSEQUENCING { BYMODIFIEDTIME }
{ BYFILENAME } (future)

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
5.000			APPEND		No

LOADSEQUENCING specifies the sequencing method for processing the files in a file set.

BYMODIFIEDTIME	SOLV manager will sequence the loading of files based off the last modified timestamp of the file in the file set.
BYFILENAME	SOLV manager will sequence the loading of files based off the names of the files in the file set and a sequencing file name template. This parameter is used in conjunction with SEQUENCEFILETEMPLATE and the SEQUENCEFILETYPE.

PRI number

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
5.000			AUDMON-25	1	199	Yes

Is the priority at which the SOLV Manager runs. The number can be from 1 to 199. If this parameter is omitted, the default is a priority of 25 less than the priority of AUDMON.

If this parameter is altered the PRI will not be in effect until the next time SOLVMGR needs to be restarted.

PROCESS [\system.] \$solvmgr_name

Initial Version	Changed Version	Values Default	Value Specifications	Alter
5.000		None	Valid process name (include NODE)	No

This required parameter is the process name of the SOLV Manager.

PROGRAM [\system.\$volume.subvolume] filename

Initial Version	Changed Version	Values Default	Value Specifications	Alter
5.000		Current Subvolume	Valid program file name	Yes

Is the name of the SOLV Manager object file. Unless otherwise specified, the volume and subvolume name used will be the same as the location of the object file for AUDMON. The standard, installed name for the SOLV Manager object file is SOLVMGR.

SOLVMGRDELAY num

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
5.000		60	0	32767	Yes

SOLVMGRDELAY specifies the frequency that SOLV Manager checks the files in the set to determine when to roll to the next file in the sequence. This time is in seconds.

STARTTIME { (start_date start_time) }
{ (-1) }

Initial Version	Changed Version	Values Default	Value Specifications	Alter
5.000		None	-1 reset Date Time	No

Is used by SOLVMGR to start processing on the file from the file set whose file's modified time occurs after this date and time. The file list is generated from the DBSs configured for the SOLVMGR. Start_date is optional. If not entered, the current date is assumed. If start_date is entered it must be in the format MMM DD YYYY, where MMM are the first

three characters of the month name (e.g., JUN), DD are the day digits and YYYY is the four digit year; YYYY is optional and if omitted the current year is assumed (e.g., JUN 01 2011). If entered, start_time must be in the format of HH:MM:SS.t.t. If it is omitted 00:00:00.0.0 is assumed. Entering -1 will clear the value previously set for the parameter. This is an example of setting this parameter: SET SOLVMGR STARTTIME (SEP 26 2011,09:13:00.0.0)

Only one of STARTTIME or STARTFNAME can be specified.
 STARTTIME is ignored if restart (marker) records exist for the SOLVMGR.

If neither STARTTIME nor STARTFNAME are specified, SOLV loading will start with the file having the earliest modified timestamp. Essentially this means that all files in the file set will be loaded.

STARTFNAME [\system.\$volume.subvolume] start_fname

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
5.000		None			No

This parameter identifies the name of the starting file, inclusive, in the sequence when the specific SOLVMGR is started for the first time. Only one of STARTTIME or STARTFNAME can be specified. STARTFNAME is ignored if restart (marker) records exist for the SOLVMGR.

If any part of the system, volume and subvolume is not specified, the AUDCOM basic session setting for SOURCEVOL is used

STOPTIME { (stop_date stop_time) }
 { (-1) }

Initial Version	Changed Version	Values Default	Value Specifications	Alter
5.000		None	-1 reset Date Time	No

Is used by SOLVMGR to stop processing on the file from the file set whose file's modified time occurs after this date and time. The file list is generated from the DBSs configured for the SOLVMGR. If SOLV is loading a particular file and the modified time exceeds the STOPTIME, SOLVMGR will instruct SOLV to stop loading when EOF is reached.

Stop_date is optional. If not entered, the current date is assumed. If stop_date is entered it must be in the format MMM DD YYYY, where MMM are the first three characters of the month name (e.g., JUN), DD are the day digits and YYYY is the four digit year; YYYY is optional and if

omitted the current year is assumed (e.g., JUN 01 2011). If entered, stop_time must be in the format of HH:MM:SS.t.t. If it is omitted 00:00:00.0.0 is assumed. Entering -1 will clear the value previously set for the parameter. This is an example of setting this parameter: SET SOLVMGR STOPTIME (SEP 26 2011,09:13:00.0.0)

Only one of STOPTIME or STOPFNAME can be specified.

If neither STARTTIME nor STARTFNAME are specified, SOLV loading will continue indefinitely.

STOPFNAME [\system.\$volume.subvolume] stop_fname

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
5.000			None			Yes

This parameter identifies the name of the stop file, inclusive, in the sequence when the specific SOLVMGR starts processing this file. Only one of STARTTIME or STARTFNAME can be specified. STARTFNAME is ignored if restart (marker) records exist for the SOLVMGR.

If any part of the system, volume and subvolume is not specified, the AUDCOM basic session setting for SOURCEVOL is used

TRACE level_number

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
5.000		0	disable	0	2	No

Disables or sets the trace level for the SOLVMGR event tracing. Level_number specifies the level of detail supplied in the trace. 0 through 3 are valid level_numbers. The default is 0, which disables tracing. A setting of 1 dumps most function names as they are called, 2 dumps additional function names, and detail for certain functions.

Note: Tracing generates a significant additional overhead, and will adversely affect performance. Tracing should never be enabled except under direction from HP Shadowbase Support.

TRACEFILE filename

Initial Version	Changed Version	Values	Default	Value Specifications	Alter
5.000		None	Valid file name	Include NODE	No

When tracing is enabled, this identifies the file name where the results are to be output. The filename can be fully qualified with volume and subvolume names, however, the file name portion may only be 7 bytes. The SOLV Manager will create up to 36 trace files, each will hold approximately 10MByte of data, extent sizes (14, 42) with maxextents = 746. Each file will have 0-9, A-Z appended to it. For example, if the TRACEFILE specified was \$DATA.TRACE.SOLVMGR, the SOLV Manager would create up to 36 trace files named \$DATA.TRACE.SOLVMGR0, \$DATA.TRACE.SOLVMGR1, ..., \$DATA.TRACE.SOLVMGR9, \$DATA.TRACE.SOLVMGRA, ..., \$DATA.TRACE.SOLVMGRZ. When the SOLVMGRZ file is filled, it will roll to writing back at the SOLVMGR0 file.

SOLVAUDITTYPE {INSERT}
 {UPDATE}

Initial Version	Changed Version	Values Default	Value Specifications	Alter
5.000		INSERT		Yes

This option is used to tell SOLV which type of DML statement to generate and send to the consumer. The options are insert and update. Insert is generally used when the target file is empty at the start of SOLV. Update is used to reload an existing file that already contains much of the data that will be processed SOLV.

SOLVCONFIGNAME [\system.\$volume.subvolume] config_fname

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
5.000		SHADPARM			Yes

This is the name of the configuration file that will be used by SOLV if necessary. The default file name is SHADPARM in the same directory where the SOLV executable resides.

The SOLVMGR starts SOLV with all the appropriate configuration parameters. Use this file in the event that additional parameters are required or ones that are specified by SOLVMGR need to be overridden. This setting is used with SOLVCONFIGSECTION.

SOLVCONFIGSECTION section_name

Initial	Changed
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HP NonStop Shadowbase Command Definitions
SOLV Manager (File Chaser) Command Descriptions

Version	Version	Values Default	Value Specifications	Alter
5.000		SOLVMGR		Yes

This is the section name within the configuration file to use for alternate parameter names and their values. This setting is used with SOLVCONFIGNAME.

SOLVCREATETARGETONSTART { OFF }
 { ALL }
 { FIRSTONLY }

Initial	Changed	Values Default	Value Specifications	Alter
Version	Version			
5.000		OFF		Yes

This option instructs SOLV to send a create event to the consumer so that the target file can be created like the source file at the start of a load. The ALL option will create the target file for every new SOLV load. The FIRSTONLY option will generate the create event only on the first SOLV load of the sequence.

Note: Verify the DBS for the corresponding consumer process to which you SOLV process is writing has been enabled for replicating CREATE statements. Reference SET CREATES ON in the SET DBS section of this manual for more detail.

SOLVCPULIST { (-1) }
 { cpu_number }
 { (cpu_number, cpu_number, ...) }

Initial	Changed	Values Default	Value Specifications	Alter
Version	Version			
5.000		-1	Valid CPU number	Yes

This parameter specifies a list of processors to be used for starting SOLV. Up to 16 can be specified (0 through 15). The order of usage is based on the order specified in the list. If a processor is not available, the next in the list will be tried. An EMS message will be logged to indicate if a problem occurred attempting to use a processor in the list. An EMS message will be logged to indicate which processor is used. The default is nil (-1), meaning to use the same CPU where AUDMON is running.

If this parameter is altered, the CPU value(s) will not be in effect until the next time SOLVMGR needs to start SOLV.

HP NonStop Shadowbase Command Definitions
SOLV Manager (File Chaser) Command Descriptions

SOLVDEBUG { OFF }
 { ONSTART }

Initial Version	Changed Version	Values Default	Value Specifications	Alter
5.000		OFF	ONSTART	Yes

Specifies whether SOLV enters debug mode and under what condition. Generally, this should only be set when HP Shadowbase instructs you to do so for diagnosing problems.

OFF the SOLV Manager does not enter debug mode.
ONSTART the SOLV Manager enters debug mode on start-up.

If omitted, the default is OFF.

SOLVEOFDELAY num

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
5.000		60	1	32767	Yes

This is the amount of time in seconds that SOLV will delay before trying to read more data out of the source file or table after reaching EOF.

SOLVMAXRETRIES num

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
5.000		3	0	32767	Yes

This is the number of times a read or fetch operation will be retried after obtaining a timeout due to locks or inadequate resources. The SOLV process will fail when the number of retries is reached.

SOLVPRI number

Initial Version	Changed Version	Values Default	Minimum	Maximum	Alter
5.000		AUDMON-30	1	199	Yes

Is the priority at which SOLV will be started. The number can be from 1 to 199. If this parameter is omitted, the default is a priority of 30 less than the priority of AUDMON.

If this parameter is altered the PRI will not be in effect until the next time SOLV needs to be restarted.

SOLVPROCESS [\system.] \$solv_name

Initial Version	Changed Version	Values Default	Value Specifications	Alter
5.000		None	Valid process name (include NODE)	No

This required parameter is the process name of SOLV.

SOLVPROGRAM [\system.\$volume.subvolume] filename

Initial Version	Changed Version	Values Default	Value Specifications	Alter
5.000		Current Subvolume	Valid program file name	Yes

Is the name of the SOLV object file. Unless otherwise specified, the volume and subvolume name used will be the same as the location of the object file for AUDMON. The standard, installed name for the SOLV object file is SOLV.

SOLVPURGEDATAONSTART { OFF }
 { ALL }
 { FIRSTONLY }

Initial Version	Changed Version	Values Default	Value Specifications	Alter
5.000		OFF		Yes

This option instructs SOLV to send a purgedata event to the consumer so that the target file can be emptied at the start of a load. The ALL option will issue a purgedata on the target file for every new SOLV load. The FIRSTONLY option will generate the purgedata event only on the first SOLV load of the sequence.

Note: Verify the DBS for the corresponding consumer process to which you SOLV process is writing has been enabled for replicating PURGEDATA statements. Reference SET PURGEDATAS ON in the SET DBS section of this manual for more detail.

SOLVRECDELAY num

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
5.000			0	0	32767	Yes

This option is used to throttle the reading of source records or rows. A delay in .01 seconds is performed between every read. The default is zero thus there is no throttling between reads.

SOLVRETRYDELAY num

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
5.000			30	0	32767	Yes

This is the number of seconds that SOLV will wait after a read or fetch operation has been issue before a timeout will occur due to a lock or inadequate resources. The fetch or read will be reissued for up to SOLVMAXRETRIES occurrences. The SOLV process will fail when the maximum number of retries is reached.

SOLVTRANSDELAY num

Initial Version	Changed Version	Values	Default	Minimum	Maximum	Alter
5.000			0	0	32767	Yes

This option is used to throttle the reading of data from the source file or table. A delay in .01 seconds is performed between transactions. A transaction is governed by number of records set in NUMTRANSRECS. The default is zero thus there is no throttling between transactions.

SHOW SOLVMGR Command

The SHOW SOLVMGR command displays the current values set for the SOLV Manager during the current AUDCOM session. The syntax is:

```
SHOW [ / OUT list_file / ] SOLVMGR
```

OUT list_file

This directs listing the output to a named file. It can be a disk file, spooler location, or process such as \$ZHOME. If omitted, listing output goes to the AUDCOM list file; this is typically the home terminal.

HP NonStop Shadowbase Command Definitions

SOLV Manager (File Chaser) Command Descriptions

An example of the results of doing an SHOW SOLVMGR command is shown below:

```
+show solvmgr
SOLVMGR OBJECT SETTINGS:
  ACTIVITYDELAY 60
  CHECKSAMEFILEATTR OFF
  CPULIST ( ? )
  DEBUG OFF
  FAILMAX 0
  FAILRETRYDELAY 15
  FAILSPAN 900
  INACTIVITYDELAY 60
  LOADBEHAVIOR APPEND
  LOADSEQUENCING BYMODIFIEDTIME
  PRI 120
  PROCESS ?
  PROGRAM \GRAVIC1.$GPJ.SMGRUNST.SOLVMGR
  SOLVAUDITTYPE INSERT
  SOLVCONFIGNAME \GRAVIC1.$GPJ.SMGRUNST.SHADPARM
  SOLVCONFIGSECTION SOLVMGR
  SOLVCPULIST ( ? )
  SOLVCREATETARGETONSTART OFF
  SOLVDEBUG OFF
  SOLVEOFDELAY 60
  SOLVMAXRETRIES 3
  SOLVMGRDELAY 60
  SOLVPRI 115
  SOLVPROCESS ?
  SOLVPROGRAM \GRAVIC1.$GPJ.SMGRUNST.SOLV
  SOLVPURGEDATAONSTART OFF
  SOLVRECDELAY 0
  SOLVRETRYDELAY 30
  SOLVTRANSDELAY 0
  STARTFNAME ?
  STARTTIME ?
  STOPFNAME ?
  STOPTIME ?
  TRACE OFF
  TRACEFILE ?
+
```

START SOLVMGR Command

The START SOLVMGR command enables execution of a SOLV Manager. This command causes the SOLV Manager to prepare to start a load. This command must be followed by a RUN command for the SOLV Manager to

actually start the SOLV process and begin sending data to the Consumer. Enter this command after the associated Consumer is started. The syntax is:

```
START  [ SOLVMGR ] { [<audmon_name>.] solvmgr_name }  
                  { [ SOLVMGR ]   [<audmon_name>.* ] }
```

audmon_name

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

solvmgr_name

is the name of the SOLV Manager to be started.

*

This indicates to start all SOLV Managers.

STATS SOLVMGR Command (Alternative)

Currently the STATS SOLVMGR command is not available through AUDCOM. Alternatively, SOLVCOM can be used to display historical file loading statistics of individual files. SOLVCOM has the ability to display individual statistics for each file in the file set specified in the DBS(s). See the HP NonStop Shadowbase SOLV Manual for details on using SOLVCOM.

STATUS SOLVMGR Command

The STATUS SOLVMGR command shows the status of a SOLV Manager and its associated Consumer.

The syntax is:

```
STATUS [/OUT list_file/] [SOLVMGR] { [<audmon-name>.] solvmgr_name }  
                                     { [<audmon-name>.* ] }  
                                     [, DETAIL]
```

OUT list_file

This directs listing the output to a named file. If omitted, listing output goes to the AUDCOM list file; this is typically the home terminal.

audmon_name

HP NonStop Shadowbase Command Definitions SOLV Manager (File Chaser) Command Descriptions

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

`solvmgr_name`

Is the name of the SOLV Manager.

*

This indicates to include all SOLV Managers.

The STATUS SOLVMGR command will now show the HP NonStop Shadowbase product T-Number, and release version.

DETAIL

Here is an example of the output for a STATUS SOLVMGR command:

```
+status solvmgr *  
  
SHADOWBASE - V5002H06 - (26OCT12)  
SMGR STATUS AT 2011-09-07:10:03:51 :  
  AUDMON: \H2.$GJMON  
  
  SOLVMGR/SOLV      PROCESS      STATE  
  -----  
SMGR1               \H2.$GJSM1      RUNNING  
  SOLV               \H2.$GJSL1      RUNNING  
  LOAD FILE          \H2.$GPJ.S5000.ENTRYA  
  NEXT LOAD FILE     N/A  
  CONSUMER            \H2.$GJCON  
  MARKER PREFIX       \H2.$GPJ.S5000.SOLVMKR
```

1. **SMGR STATUS AT:** provides the date and time of the status request.
2. **AUDMON:** The process name for the AUDMON process monitoring the SOLV Manager.
3. **SOLV Manager info:** This line provides information about the SOLV Manager:
 - SMGRNAME – the logical name of the SOLV Manager.
 - PROCESS – the process name for the SOLV Manager.
 - STATE – the state for the SOLV Manager.
 - ⇒ FAILED: the SOLV Manager stopped unexpectedly.
 - ⇒ IDLE: The SOLV Manager has been added, but has not been started.
 - ⇒ RUNNING: The SOLV Manager is processing data.

- ⇒ **STARTED:** The SOLV Manager was started via the START command, but has not received the RUN command yet.
 - ⇒ **UNKNOWN:** The SOLV Manager did not respond within AUDMON's timeout limit and AUDMON could not determine its current state. Check the EMS log for messages with more information on the state of the SOLV Manager.
4. The next lines contain information about the SOLV process running under SOLVMGR
- **SOLV** – the process name identifying the specific SOLV started by SOVMGR and its state. The states can be the same as those for SOLVMGR above.
 - Additional information about the SOLV process.
 - ⇒ **LOAD FILE:** The name of the current source file that SOLV is currently processing.
 - ⇒ **NEXT LOAD FILE:** If available is the name of the next files that SOLV will process once the current file has been completely loaded.
 - ⇒ **CONSUMER:** This is the name of the HP Shadowbase Consumer that is receiving the source file events from SOLV
 - ⇒ **MARKER PREFIX:** Is the prefix of the files used to maintain SOLV restart information for active loads and historical information about completed loads. There are three marker files that are created by a consumer and used by SOLV. They are named using the prefix append with the letters A, U, and H. The audited (A) file contains restart data for audited files and tables. The unaudited (U) contains restart data for unaudited files and tables. The history (H) file contains archived results for completed loads.

STOP SOLVMGR Command

The STOP SOLVMGR command stops a SOLV Manager. The syntax is:

```
STOP { [ SOLVMGR ] [<audmon_name>.]<solvmgr_name> }  
      { [ SOLVMGR ] [<audmon_name>.*] * }  
      [!]
```

audmon_name

HP NonStop Shadowbase Command Definitions UNDO Command Descriptions

Optionally specifies the Guardian process name for the HP Shadowbase monitor process controlling the replication environment. If omitted, the currently opened replication environment will be used.

`solvmgr_name`

Is the name of the SOLV Manager.

`*`

Indicates to stop all SOLV Managers.

`!`

Indicates to ignore errors.

Note: Prior to stopping, SOLVMGR will request that SOLV drain any active events and refresh the restart file with the restart point.

Note: The Consumer may log a SOLV disconnect message when the SOLV Manager is stopped if there is work in progress (active transactions) at the Consumer that didn't have enough time to drain.

UNDO Command Descriptions

STATUS UNDO Command

The STATUS UNDO command displays the Undo specific status information about the AUDMON environment. It is only meaningful for environments in which the AUD UNDOMODE parameter is set to ON. The syntax is:

```
STATUS [ / OUT list_file / ] UNDO
```

`OUT list_file`

directs listing output to a named file. If this option is omitted, listing output is directed to the AUDCOM list file; this is typically the home terminal.

The STATUS UNDO command will now show the HP NonStop Shadowbase product T-Number, and release version.

HP NonStop Shadowbase Command Definitions

UNDO Command Descriptions

The following is an example of what can be output by the command:

```
SHADOWBASE - V5002H06 - (26OCT12)
UNDO STATUS AT 2012-04-18:13:42:47 :

AUDMON \H2.$JZMON - STATE = RUNNING
COLLECTOR/QMGR/CONSUMER STATES:
NAME                PROCESS                TYPE  STATE                STATE CHANGE TIME
-----
COLL-JZCOL          \H2.$JZCOL          COLL  COMPLETE            2012-04-18:13:33:56
LTS (LAST EVENT):   2012-04-03:09:49:11
QMGR-SRC-JZQM       \H2.$JZQM           QMGR  RDYTOSEND            2012-04-18:13:33:52
CONS-DIR-JZCN1      \H2.$JZCN1          CONS  WAITING              2012-04-18:13:33:51
LTS (LAST EVENT):   NONE RECEIVED

UNDO EXTRACT PHASE COMPLETE, WAITING FOR UNDO COMMAND
```

In addition to the standard states which are output by the STATUS AUD command, the STATUS UNDO command will display the following statuses:

APPLYING	Consumer object only, applying reversing data for apply phase.
COMPLETE	Object completed processing for the Undo.
QUEUEING	Queue Manger object only, queuing records for extract phase.
RDYTOSEND	Queue Manager object only, extract phase complete, awaiting UNDO command to start sending reversing events for apply phase.
READING	Collector objects only, reading audit data for extract phase.
SENDING	Queue Manager object only, sending reversing events to Consumer for apply phase.
WAITING	Consumer object only, waiting for first reversing event.

At the end of the status, a summary line is output for where in the Undo process the environment is currently. In the example above, the extract phase of the Undo had completed, but no UNDO command had yet been issued. So, it was waiting for an UNDO command before beginning the apply phase of the Undo.

UNDO QMGR Command

HP NonStop Shadowbase Command Definitions

UNDO Command Descriptions

The UNDO command initiates the apply phase when running in UNDOMODE and the extract phase of the UNDO has previously completed. The syntax is:

```
UNDO [QMGR] { [<audmon-name>.<qmgr-name> [ {, COMMIT }
                                     {, ABORT } ] }
          { [<audmon-name>.*          [ {, COMMIT }
                                     {, ABORT } ] }
```

COMMIT

This option, if specified, indicates that any dangling transactions present in the data that was read for the UNDO are to be committed. Dangling transactions are any transactions for which one or more events were within the start and stop range for the UNDO, but no abort or commit record was present. If the UNDO range has no dangling transactions, this option will have no effect.

ABORT

This option, if specified, indicates that any dangling transactions present in the data that was read for the UNDO are to be aborted. Dangling transactions are any transactions for which one or more events were within the start and stop range for the UNDO, but no abort or commit record was present. If the UNDO range has no dangling transactions, this option will have no effect.

By default, if neither of the COMMIT or ABORT options are specified, the UNDO command will be rejected if any dangling transactions are detected. **Where possible, it is recommended that neither of these options be specified, and an UNDO start and stop time range be configured such that no dangling transactions are present.**